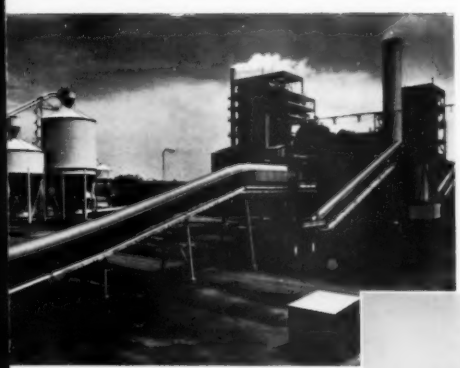
June 26, 1961

PULP & PAPER



Tennessee River shows how careful planning pays 39

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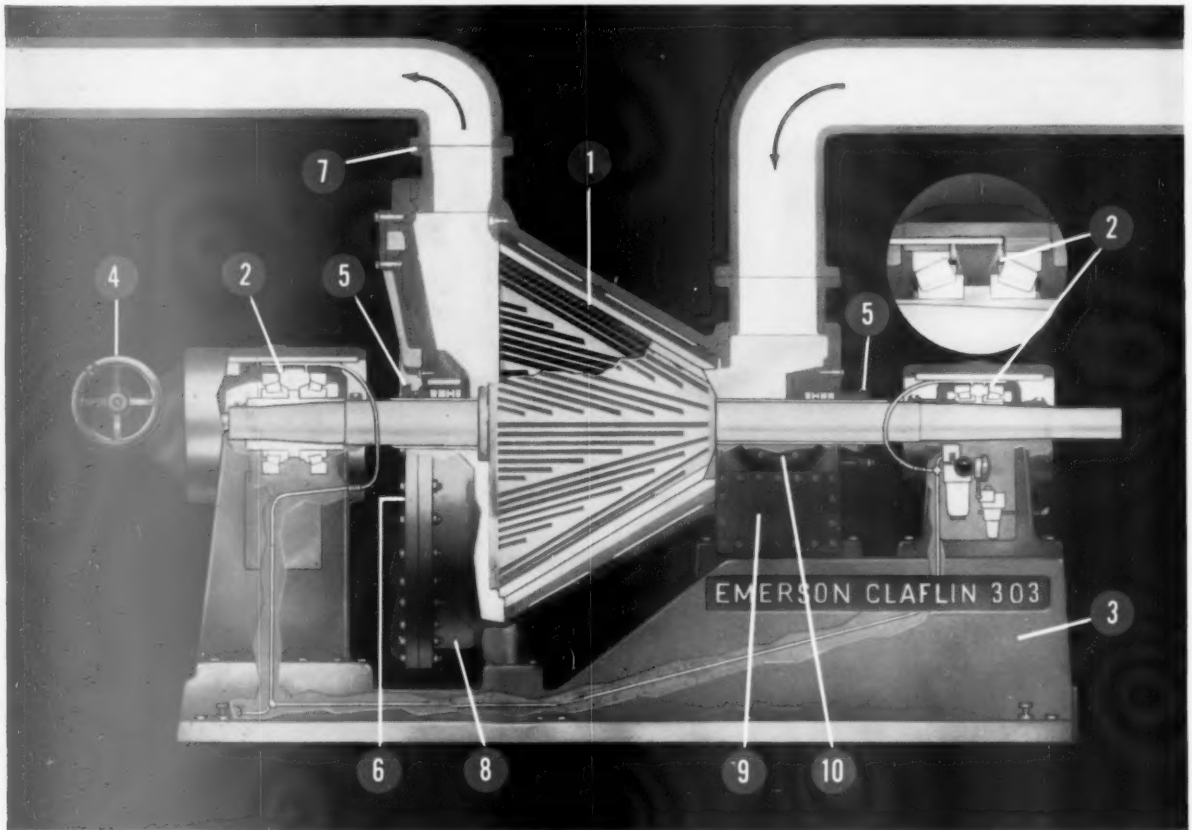
Have you looked into an Emerson Claflin lately?



1. Wide tackle selection 2. Oil mist lubrication 3. Sturdy construction 4. Micro-feed plug positioning 5. Water-cooled packing boxes 6. Large 2-piece head 7. Stock outlet cast in shell 8. Tangent cleanout 9. Sand trap 10. Hand hole

In stock preparation, no conical refiner can match the results obtained from the Emerson Claflin for several reasons. For example, a wide choice of tackle enables selection of just the right one to give you the desired physical results regardless of the furnish being run.

For high development — Develomax sectional or fabricated fillings
For rough stock refining — cast fillings
For defibering and refining — deflector type fillings
For controlled cutting and defibering — stainless steel fillings
For rejects — dam type or abrasive fillings
For maximum refining — lava fillings

Operating performance is another reason. Claflins are equipped with a built-in oil mist system of continuous, automatic lubrication, which feeds both double anti-friction roller bearings from a single reservoir. Constantly flowing oil mist keeps dirt out, conserves oil, eliminates lubrication downtime.

Sturdily built throughout, Claflins withstand up to 100 psi with virtually no vibration. Positive control over plug settings is held to .0005 inch by micro-feed handwheel adjustment. Coupling has full travel slide feature. One setting lasts the life of the filling. Water-cooled packing boxes protect against stock leakage.

Maintenance is simple. Large shell head is designed in two pieces for ease in changing fillings. Plug is removed without dismantling bearings. Stock outlet is cast as part of the shell, so mill piping need not be disturbed. Tangent cleanout is aligned to the direction of stock flow for quick and easy flushing. Sand trap and inspection hand hole are conveniently located at the stock inlet.

Widely recognized for its extreme versatility, the Emerson Claflin is proving daily its capabilities on an unlimited range of furnishes — screen rejects and fine papers, bag, wrap and multiwall, tissue and towel, corrugating, food and container board, boxboard and liner board, boxboard filler, roofing, hot stock and others.

Four sizes of Emerson Claflins cover an HP range of 5 to 500, RPM range of 350 to 1200 and tons per day range of 1 to 200.

For best refining, better look into the Emerson Claflin. Send for descriptive bulletin to The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Inc., Lawrence, Massachusetts.

Only Emerson Makes the Claflin

BOLTON EMERSON
TRADE MARK

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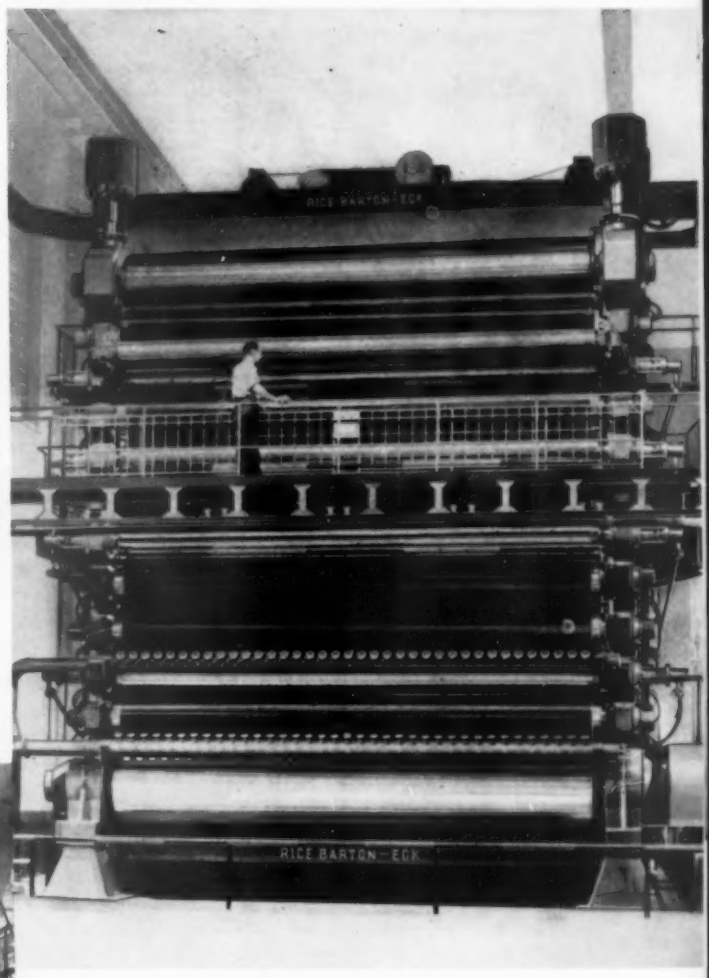
The BIG name in Stacks!

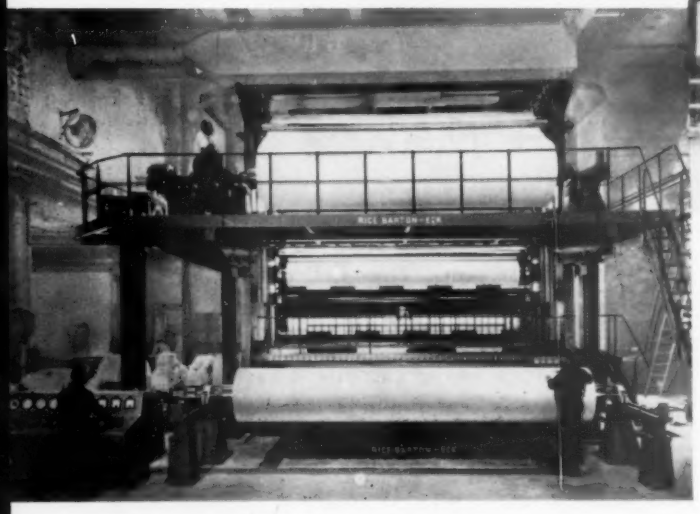
RICE BARTON-ECK builds **HIGH SPEED SUPERCALENDERS BIG** and builds them often. More than one supercalender a week was installed last year and over 350 have been installed in the past ten years.

This giant 230″ stack is designed for production speeds up to 2500 f.p.m. and nip pressures up to 2000 pounds.

Here are the reasons **RICE BARTON-ECK** supercalenders are superior:

- High strength open front frames for faster roll changes
- Elevators both sides for easier threading and safer operation
- Hydro-pneumatic pressure system with electric automatic controls
- Unwind and rewind tension control, center or surface type with special roll handling equipment
- Automatic pressure release and quick roll lift





Above—Open front view indicates easy access to rolls. Bearings and housings come off with rolls, housings gibbed to frames. Elevators on both sides of stack are synchronized with threading speed.

Shown left—Closed side shows semi-automatic loading and unloading of rolls and reels. Unwind and wind-up by electric tension control. Control desk for electric and hydraulic systems.

For descriptive folder write today to

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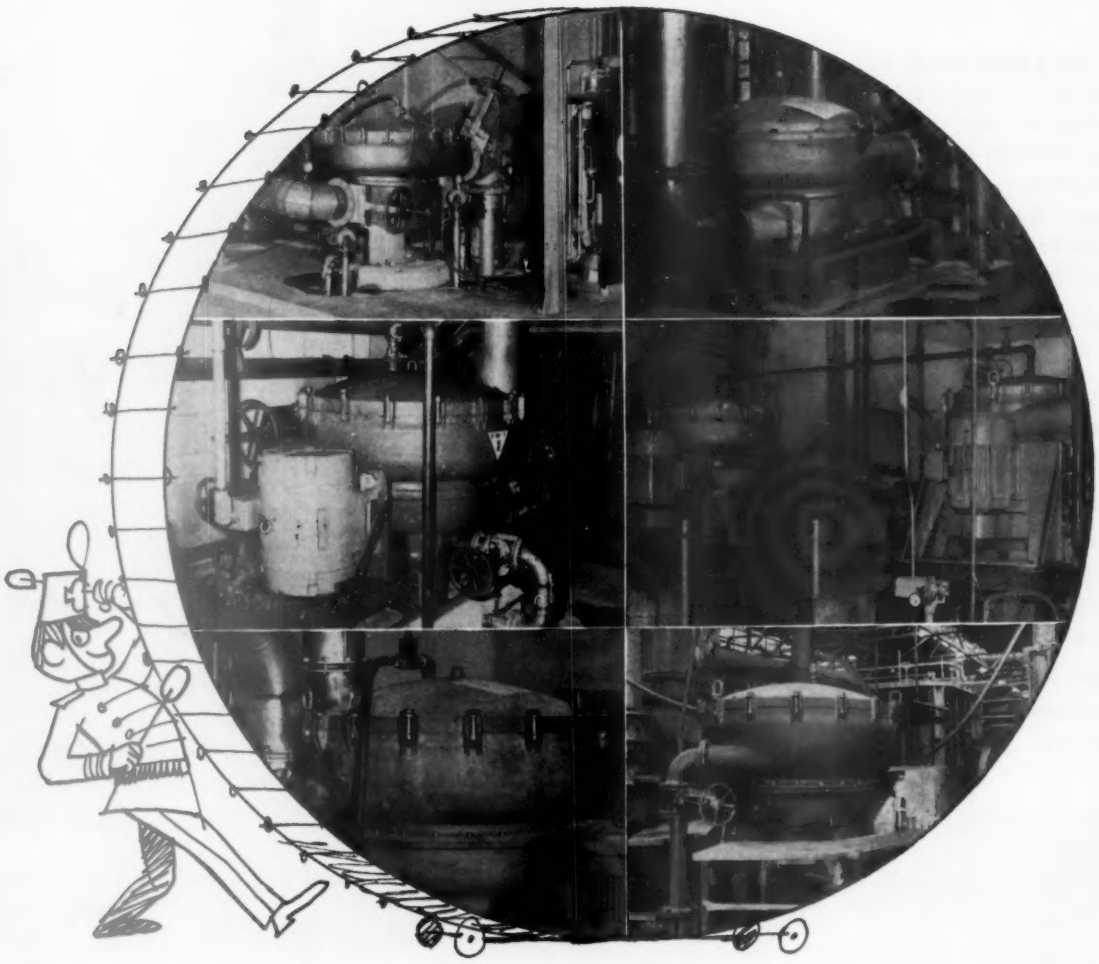
FOURDRINIERS, PRESS SECTIONS, DRYER SECTIONS, CALENDERS AND SUPERCALENDERS, REELS, WINDERS, HEAD BOXES, SIZE PRESSES, BREAKER STACKS, DIFFERENTIAL DRAW CONTROL DRIVES AND CONE PULLEY DRIVES, PULPING EQUIPMENT, HIGH VELOCITY AIR DRYERS, TRAILING BLADE COATERS, FIBRE-FLASH DRYING SYSTEMS

RICE BARTON ECK

Have You Boarded The **BIRD CENTRISCREEN** *Bandwagon?*



Pictured are but a few of the recent Centriscreen installations ranging from black liquor and interstage pulp screening at the brown stock washers through every kind of paper stock — newsprint, kraft, board, sulphite, tissue and high grade specialties of all kinds.

Centriscreens come in sizes to meet your capacity requirements. They deliver continuously clean, shive-free, lump-free, slime-free stock. Breaks and down time are minimized. Wire life is increased. Paper machine speed is kept at a high level.

May we submit recommendations, layouts and estimates?

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PULP & PAPER

NEWS DIGEST...

Pres. Kennedy won his point in pollution battle in Congress, as predicted in PULP & PAPER Mar. 20 issue, when Rep. Blatnik's (D-Minn.) dream of setting up a new separate powerful pollution bureau was defeated. House-passed bill keeps pollution control in Public Health Service, as JFK wanted. Senate committee voted to substitute more moderate Sen. Kerr's (D-Okla.) bill for Blatnik's.

Snowflake (Ariz.) mill target is November according to Raymond E. Baker, executive vice pres., Southwest Forest Industries. "Barring unforeseen circumstances, production of kraft paper and linerboard will begin in November—newsprint a month later," said Mr. Baker, as he signed up T. M. Lindley from Potlatch as kraft supt., Mike Doyle from Baie Comeau as groundwood supt., and Ralph Lawrence from Fibreboard as personnel director. Two Beloit paper machines are being installed.

Rayonier's Woodfibre mill was steaming up in week of June 19, starting production of 85,000 tons annually of the new Fibrenier bleached kraft. The Rayonier Canada's British Columbia plant will ship overseas and to the U.S. It has forest limits making possible doubling of output.

Wilderness Bill action on June 29 may be anticipated as Sen. Anderson's (D-N.M.) committee meets in executive session. A surprisingly rough time greeted this bill in his committee, with Sen. Allott (R-Colo.) demanding amendments which would bar the immediate "lock up" of some 50 million acres and provide a review 15 years hence of areas now chosen and defer other areas for later action by Congress. Sen. Church (D-Idaho) also is reported planning restrictive amendments.

Scandinavians offer European pulp buyers rebates of 3% on bleached sulfite, 2% on bleached sulfate, 1% on unbleached sulfite (none on unbleached sulfate) for third quarter orders only. At least one major European purchaser asks larger rebates. Scandinavian action on paper prices in Britain may have an important bearing on outcome.

Midyear upturn heartens industry executives as order backlogs mount and production-capacity rates improve. BDSA's Forest Products Div. says current consumer demands are being reflected almost immediately at mill levels. It sees midyear as point when "X marks the spot when 1961's upward paper and board production trend line crosses downward line of 1960."

If U.S. pulp or paper mill wants a nuclear power plant alongside its operation, it may still write, expressing interest to U.S. Atomic Energy Commission, Argonne, Ill. (see PULP & PAPER June 12). Expressions of interest will still be accepted and there will be no obligation. First such plant is being built at Genoa, Wis., to serve 27 dairy and cheese cooperatives through Dairyland Power Cooperative. Allis-Chalmers is to be builder, as it would be of the reactor to serve pulp or paper industry.

A 2% wage increase at 19 West Coast mills with other benefits was approved by management and unions. Over 20,000 mill workers get the raise.

....INDUSTRY GROWTH

Low cost Tennessee mill

is situated at ideal location; other advantages are enjoyed

By ALBERT W. WILSON, Editor of PULP & PAPER

COUNCE, TENN.—The new kraft linerboard plant of Tennessee River Pulp and Paper Co. is one of the lowest cost pulp and paper mills of modern times and has one of the most advantageous locations in the U.S.

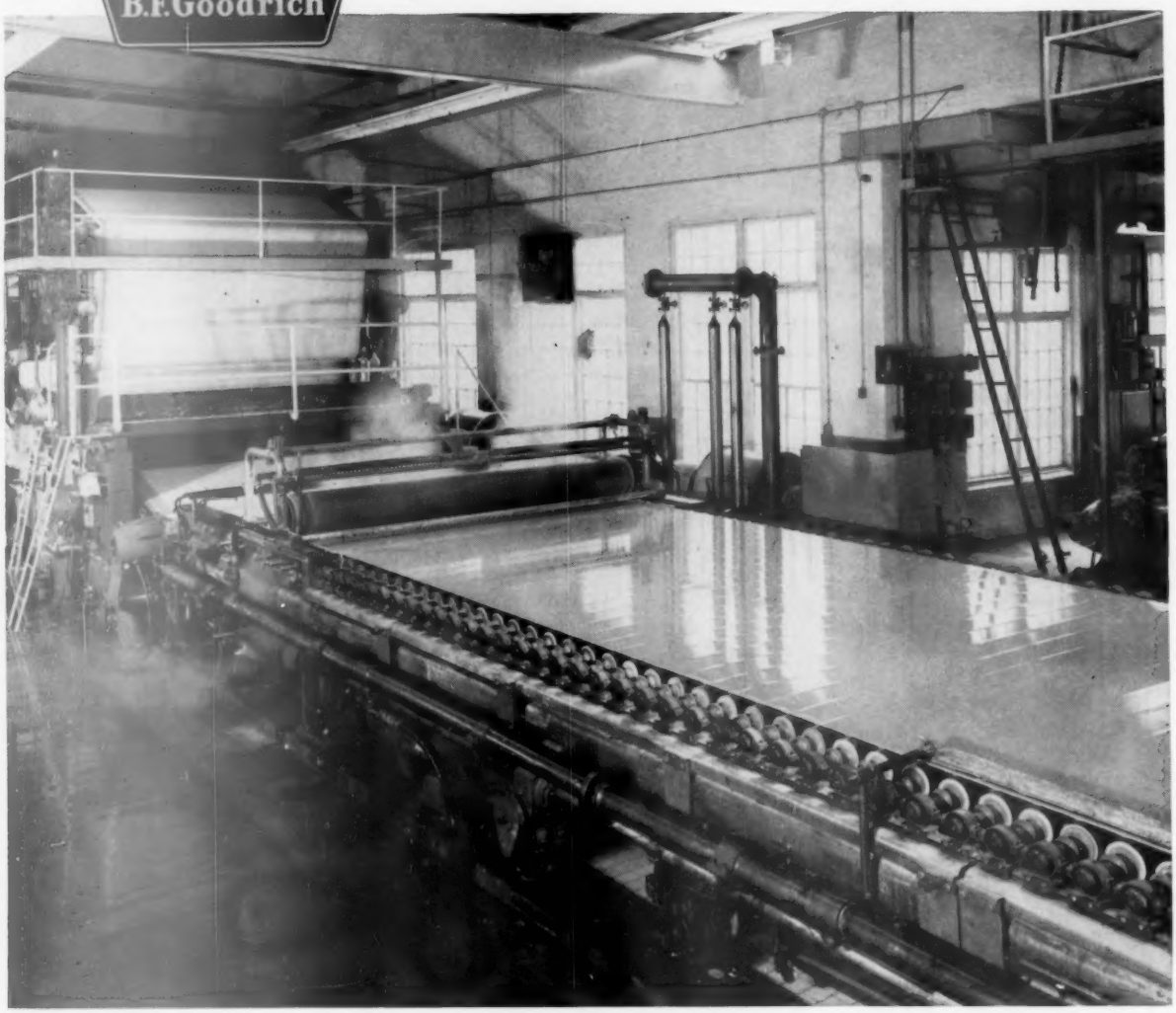
More than 100 top management, and production, and engineering executives gave the new mill the "double-O" at an official inaugural June 7.

In the fall of 1955, Gunnar Nicholson, already with an illustrious industry career behind him at International Paper Co. and Union Bag Paper Corp., was chosen as president and one of the mill's five directors.

"From that day forth, Gunnar Nicholson and this mill have been synonymous."

Thus did W. Irving Osborne, Jr., chairman of the board of the Tennessee company (and just recently elected the new president of Pullman Inc., holding company for several

B.F.Goodrich



These rolls are on the level

Better water removal, no spotting with B.F.Goodrich table rolls

BECAUSE B.F.Goodrich table rolls are ground straight and true, they move evenly with the wire without developing high or low spots. They are dynamically balanced to prevent whipping even at high speeds. The sheet that's produced is smooth and uniform. No need to use deflectors even if rolls are running as fast as 1000 feet per minute.

These rolls are called "Dukbak" because they shed water fast, throw it down and away, not up against the wire. There's no danger of water spray returning to the wire and spotting the sheet. You get faster, more efficient water removal, better paper formation.

In the picture, you see part of the new fourdrinier installed at Crocker Burbank & Co., Association, Fitchburg, Mass. All 46 rolls were covered with B.F.Goodrich Dukbak. With this new equipment, production of high-grade printing papers has been increased 100%. The rolls have needed no maintenance of any kind.

There are many advantages—both from the standpoint of performance and cost-saving—that you can expect when you buy B.F.Goodrich rubber-covered rolls. We'll be happy to send you our new catalog—or have one of our men come to your plant to make recommendations. There's no obligation, of course. Just write *B.F.Goodrich Industrial Products Co., Dept. M-165, Akron 18, Ohio.*

B.F.Goodrich *paper mill rolls*

AERIAL VIEW OF MILL showing (1) administration building, (2) industrial relations building, (3) machine shop, (4) mill operations, lab and engineering offices, (5) pulping area including digesters, blow tanks, refining, screening and washing, (6) paper machine building, (7) warehouse and shipping dock, (8) recausticizing area, (9) power boiler and recovery area, (10) chipper and barking drums.

Pullman affiliates) state in a few words what was so well recognized by the visitors. He spoke at a dinner in Memphis, which followed a bus tour to Counce.

"Well conceived, soundly established"

was how the new mill and company were described by Howard Whitaker, chairman of the board, The Mead Corp., and national president of the American Paper and Pulp Association.

Gov. Buford Ellington of Tennessee happily noted that this was the first new industry in his state since he took office. Mr. Nicholson closed the festive dinner in characteristic fashion by calling upon his key men to stand for bows.

This amazing array of advantages and achievements in construction and operation make the mill outstanding:

1. Built at a cost of about $30,000,000, it already has produced up to 650 tons a day of high test linerboard.

2. Total cost was about $41,000,000, which includes an 18-mile spur railroad and 160,000,000 acres of timber. This and other timber and resources in the area would easily support a 1,500 to 2,000 ton/day mill, which is a future possibility.

3. An unlimited water supply from Pickwick Dam, built by the Tennessee Valley Authority years ago, and the huge artificial Pickwick Lake less than one mile away which it created—a natural settling pond, so that process water does not have to be treated.

4. Availability of TVA power at less than 4½ mills per kilowatt hour. The mill required no turbogenerators—it makes only steam.

5. Not a single piling had to be used.

6. Woodyard and woodroom were eliminated with the first outside chip storage to be adopted by a brand new mill in the South.

The whole inventory of three piles (three kinds of wood) is turned over in ten days, eliminating any fears of deterioration.

7. Chips are blown via Rader Pneumatics tubes to chip piles and to storage silos (another saving) and only a very short flume is required for unloading logs as they come in. Normally, unloaded logs go direct to the chipper.

8. There are two pulp mills in one—one for hardwoods and one for pine—and eventually, with small additions, four kinds of pulp will be made, two for top sheet and two for bottom. To simplify the pulp mill double-line operation, special instrumentation was required. A one room "nerve center" operates it all—no valve being opened or closed by hand.

9. Hot stock refining and hot stock screening.

10. Recovery and power boilers and evaporator units are out in the open—centrally controlled. The boilers are the most open ever built—with no housing top or sides except on the small area for central operation.

11. The mill was the first customer for a nearby natural gas pipe line under a ten-year contract. Coal can be delivered directly, also.

12. The mill has the first steam-turbine driven refiners in the industry, according to the builders.

13. A 262-in. Beloit Fourdrinier machine with primary and secondary

Paper sculpture by Giuseppe Baggi

Pulp from **Gottesman** *means...*

SOMETHING SPECIAL!

Bleached and Unbleached Sulphite • Bleached Hardwood • Groundwood
Bleached, Semi-Bleached, and Unbleached Kraft

GOTTESMAN–CENTRAL NATIONAL ORGANIZATION

WOOD PULP

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inlets has all the latest features and a totally enclosed hood. It was operating at 1,032 ft. per minute for the visitors.

14. The mill can ship on three rivers—Tennessee, Ohio and Mississippi. It also has access to three railroad lines, through its spur.

15. Heavy flow of water minimizes any effluent problems. Excess precipitator capacity and re-use of process water are big factors in solving pollution. Visitors noted absence of odor.

16. The wood costs were described as "normal." About 300,000 cords are purchased annually, and expenditure annually would be close to $6 million, according to the company.

17. Extreme care was taken in the employment of salaried and hourly workers, with 15,000 applicants screened for about 350 jobs. All those employed were interviewed by five persons. They came from 35 Southern mills.

18. Good working conditions are provided, with every salaried worker having his own locker.

19. Four neighboring towns afforded attractive, reasonable housing and the company did not have to build any homes.

"A gleam in the eye" of the late George Bell, former president of Bell Fibre Products Corp. was the "beginning" of this mill—way back in 1951. Mr. Osborne made this statement in recounting the history of this unusual company. Cornell Paperboard Products and Central Fibre Products Co., now part of Packaging Corp. of America were the next to join up.

Charles E. Carpenter, now retired in Cedar Gates, Fort Miller, N.Y., carried the ball for some years—getting partners lined up and working on preliminary plans.

Julian McGowin, noted forest industry leader of Chapman, Ala., advised on timberlands and helped the group to determine that the area would support such a mill.

"We were looking for a leader," said Mr. Osborne. "When we chose Mr. Nicholson in the fall of 1955, he approved the general area, and from that moment onward Gunnar Nicholson and this mill were synonymous."

Warren Smith, president, and Ronald B. Smith, vice president and head of engineering, and W. J. Degnen, project manager, all from The M. W. Kellogg Co., New York, in charge of overall construction and engineering of the mill, were present.

For H. A. Simons (International) Ltd., Vancouver, B.C., in attendance was George Fletcher. Mr. Nicholson selected the Simons firm to carry out design and the process and plant engineering work in conjunction with the Kellogg firm.

Many of the guests were representing the three companies which own Tennessee River Pulp and Paper Co.—Packaging Corp. of America (formed by merger of Ohio Boxboard, American Box Board of Michigan and Central Fibre Products Co. of Illinois and Kansas), which owns 52%; Bell Fibre Products Corp., which owns 26%; and St. Regis Paper Co., which owns 22%.

These companies are apportioned product of the mill in these percentages, and they use linerboard to supply their box plants over a broad area of the middle west.

(SEE PAGE 39 FOR COMPLETE DESCRIPTION OF TENNESSEE RIVER PULP AND PAPER CO. MILL, with numerous pictures of its equipment.) ■

HOWARD WHITAKER, APPA president, and Justin McCarthy, St. Regis vice president, engineering.

RONALD B. SMITH, M. W. Kellogg v.p. and engineering head, and George Fletcher, Howard Simmons engineering firm vice president.

JULIAN F. McGOWIN, Pomeroy & McGowin, chats with James L. Ritchie, U.S. Pulp Producers executive director.

HENRY EHRISMAN, vice president of The Foxboro Co. (left), listens with group to description of mill. His company installed instrumentation. At right is VINCENT OWENS, of Combustion Engineering, Inc., which built the mill's power and recovery boilers —"the first so totally unenclosed."

ERLING RIIS, International Paper's v.p. and gen. mgr., in discussion with Harold Holden, Gilman Paper Co. president and gen. mgr.

...Fluid Power news

OILGEAR 40 Years of Fluid Power

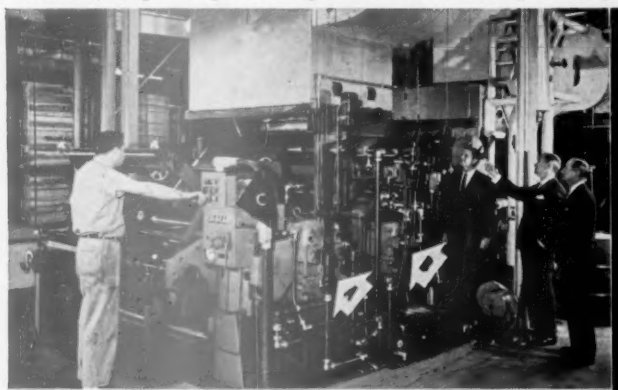
Report No. 11,806 From Oilgear *Application-Engineering* Files

HOW OILGEAR HEAVY-DUTY *Any-Speed HYTAC** DRIVE SYSTEMS ON *Anaconda's* NEW FOIL LAMINATING AND COATING MACHINES HELP SPEED PRODUCTION — CUT COSTS

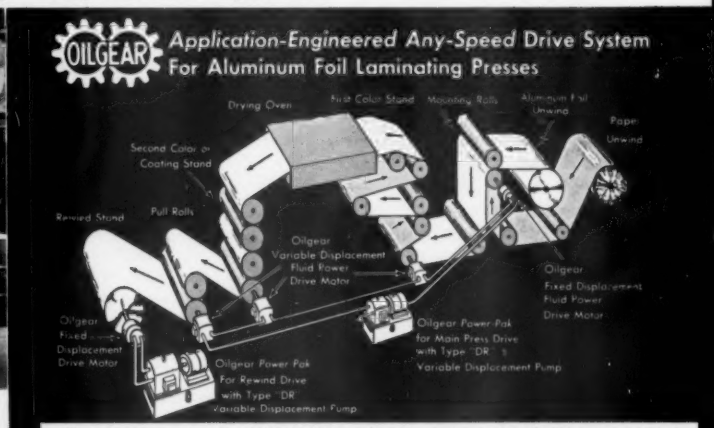
USER: *The Anaconda Aluminum Company, Louisville, Kentucky, Fair Lawn, New Jersey, Terre Haute, Indiana*
(Machine Builder — New Era Manufacturing Company, Hawthorne, New Jersey — successor to Meisel Press Manufacturing Company, Boston, Mass.)

PROBLEM: Main and Rewind Drive Systems for two, new, high-speed laminators to bond aluminum foil as thin as 0.0002" to paper stock ranging from 15-lb tissue to 0.020" carton and food board. In addition to laminating, these "presses" must simultaneously coat and/or color the foil.

REQUIREMENTS: 1. Accurate, wide range, dependable tension control to accommodate *Anaconda's* complete range of laminating foils and paper stock. 2. Infinitely variable, stepless speed range from 0 to 1000 fpm—capable of an optimum, continuous 850 fpm running speed. 3. Maintain tension accurately in "stall" condition indefinitely without overheating—and then pick up speed smoothly and quickly without snapping the sometimes fragile web. 4. Reduce costs through reduction of scrap, repair parts inventories, and machine downtime . . . operate at nearly three times former production speeds. 5. Must be: compact, to conserve valuable floor space; economical on electric power input; capable of continuous, three-shift operation.



ABOVE: One of Anaconda Aluminum's new, Oilgear-equipped, high-speed foil laminating and coating presses—rewind end—as installed at their Louisville, Kentucky, Laminating Plant. Roll cores—8¾" dia. . . . web width—from 23" to 52" . . . roll diameters—to 60" . . . roll weights—to 4500-lb. Tension range —from ½-lb/in. to 4-lb/in. depending on weight of lamination being processed. Arrows (A), (B)—Oilgear Variable Displacement Drive Pumps. Arrow (C)—one of two pushbutton control stations at opposite ends of the press—3 emergency "stop" buttons are located at other positions.


OILGEAR
Application-Engineered Any-Speed Drive System
For Aluminum Foil Laminating Presses
Drying Oven
First Color Stand
Metering Rolls
Aluminum Foil Unwind
Paper Unwind
Second Color or Coating Stand
Rewind Stand
Pull Rolls
Oilgear Variable Displacement Fluid Power Drive Motor
Oilgear Fixed Displacement Fluid Power Drive Motor
Oilgear Fixed Displacement Drive Motor
Oilgear Power Pak for Main Press Drive with Type "DR" Variable Displacement Pump
Oilgear Power Pak For Rewind Drive with Type "DR" Variable Displacement Pump

Oilgear's patented *Any-Speed HYTAC** Drives (details not shown above) hold any preselected speed within ±0.1% under constant torque loads—within ±0.5% regardless of load, electric power variations, or temperature and viscosity changes . . . provide cushioned starting, remote jogging and threading . . . smooth, even let-off or build-up tensions . . . constant torque . . . adjustable tension . . . hydrodynamic braking. Applied to center shaft winders, *Any-Speed HYTAC** Drives automatically sense and compensate for changes in overall machine speed, and can automatically provide constant, adjustable, or tapering tension over a 20:1 winding range without dancer or follower rolls.

*HYTAC—A registered Oilgear Trademark

SOLUTION: Oilgear *Any-Speed HYTAC** Main and Rewind Drive and Tension Control Systems—as symbolized in the schematic sketch—above right. These compact, heavy-duty systems have successfully met or exceeded all originally specified requirements in continuous, three-shift, high-speed operation. Oilgear Drives were selected for these new machines because of: 1. The enviable record of maintenance-free long-life in several Anaconda Aluminum Plants. For example—six out of seven original, 300-fpm laminating presses at Louisville are Oilgear-equipped . . . two operating continuously since 1946. These 14-year-old drives—and two others—*have NEVER required maintenance other than oil changes and an occasional drive shaft seal.* The other two Oilgear Drives—installed in 1948—were disassembled three years ago merely for a preventive maintenance check—haven't been "touched" since. 2. Oilgear's accurate, dependable tension and speed control over a wide range—for smooth, precise, trouble-free operation on Anaconda's *entire range* of laminating stocks. 3. Space saving—Oilgear Drives occupy less floor space . . . do not require high-speed blowers for cooling—can hold stall-speed indefinitely without overheating. 4. Economy—in electrical power input, maintenance, virtually eliminate costly machine downtime and spare parts inventories . . . and in many cases—at lower installed cost.

Unbelievable? — Not to Oilgear Users! There are case histories upon case histories on file of machines equipped with *Application-Engineered Oilgear Drive Systems* that are rolling along—efficiently, quietly—with over 20 years of trouble- and maintenance-free service! Some additional *installation-proved* reasons . . . the greater accuracy, precision control of speeds, torques, tensions . . . new economies of operation, installation, and valuable floor space . . . are why more and more Oilgear users in the paper, printing and converting, food and beverage, marine, chemical, pharmaceutical, primary metals, metalworking, textile, rubber, military, and other industries all agree that . . .

for the lowest cost per year . . . It's OILGEAR!

For practical solutions to YOUR rotary or linear drive and control problems, call the factory-trained Oilgear Application-Engineer in your vicinity. Or write, stating your specific requirements, directly to . . .

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Mill Seminars, Talks on Future

set new pattern for conventions; stress research, marketing

JACKSONVILLE, FLA.—An almost completely new design for a papermaker's convention was shaped and brought to life here in the broiling heat and humidity of north Florida in early June by the leadership of the Paper Industry Management Association. It was PIMA's 42nd annual, and for more than 550 delegates (including 130 wives), the program bore little resemblance to conventions of the past (for 40 years it was the Superintendents' Assn.). Here's what happened:

1. Two of three days were devoted entirely to mill tours—to the St. Regis and Owens-Illinois Jacksonville plants, to Hudson's Palatka and Container Corp.'s Fernandina mills. With tours on two days, each delegate was able to go to two mills.

2. Free-wheeling seminars right at the mills followed each tour, with panels of mill managers (S. P. Kaptain, St. Regis; W. B. Hobbs, Jr., Owens-Illinois; Robert E. Phinney, Container Corp.; W. W. Stuart, Hudson) and their top division managers, superintendents and engineers answering any and all questions.

3. There were only four "papers" by guest speakers on the first day and their messages were a far cry from the conventional technical programs. Semantics, research and marketing were the unusual themes for a papermakers' meeting. Here is what the speakers had to say—all of them emphasizing what this industry needs to do to improve its lot:

EDWARD BALL of Tallahassee, Fla., is president and general manager of St. Joe Paper Co. The 73-year-old industrialist was special guest of PIMA.

1. G. Willing Pepper, vice president, Scott Paper Co.

He called on PIMA members—the papermakers—to be "partners in distribution." Get out of the mills and meet the paper merchants—the customers—and learn what qualities and kinds of paper they want. In Scott, each production, engineering, and research executive must spend six full days each year with field sales groups and one day with Scott's internal marketing group. And salesmen must spend time in mills and woods.

"This cross-fertilization has vastly improved (Scott's) internal communications," said "Wing" Pepper.

Proof of the importance of the merchants to mills: There has been a recent wave of purchasing of merchant outlets by paper manufacturers "as a solution to their sales problems."

2. Charles Bury, Charles Bury & Associates, Dallas.

Be careful of the words you use, was his warning. Semantics was his subject and he humorously emphasized the great care that should be taken in communicating—especially over the telephone. "Put the pay in what you say," he advised PIMA. Ill-advised use of words needlessly and unwittingly lose friends and customers.

3. Benjamin Slatin, American Paper and Pulp Assn.

While not endorsing two recent forecasts by the Business & Defense Services Administration, Dept. of Commerce, that paper production in 2000 would be 240 million tons or 155 million tons, he nevertheless contended that this industry could meet such a fantastic demand. (Production was 34 million tons last year.)

All the various long-range forecasts, he said, are based on the assumption that this industry will maintain its competitive position. Mr. Slatin felt the industry would do so. If the industry continues to increase efficient use of resources, he said, there is no danger of running out of land, trees, water or manpower, even at a 240-million ton level.

G. W. PEPPER

Complete use of the tree (lignin plastics?), new processes and products, faster growing trees, more reuse of water—all these are possible, said Mr. Slatin. "By 2000 every tree may be doing the work of 2, 3 or 4 of today's trees. We may have to learn far more about water reuse."

4. J. Homer Winkler, Battelle Memorial Institute.

Eighteen research problems that must be attacked by this industry were listed by Mr. Winkler.

1. A successful, lighter weight magazine paper to give greater mileage, better price and offset postal increases.

2. A magazine paper with equal printability on wire and felt sides.

3. Determination of an optimum coating technique for magazine paper.

4. More uniformity in magazine paper finish.

5. More careful controls to avoid calender cuts, web breaks, etc.

6. How to measure printability.

7. Tests to predict whether a publication is suitable for binding.

8. A test to determine before binding if a paper will curl.

9. Identification of causes of web breaks on printing presses.

10. Improved methods of drying and baling pulp.

11. Solution of odor problems in pulping.

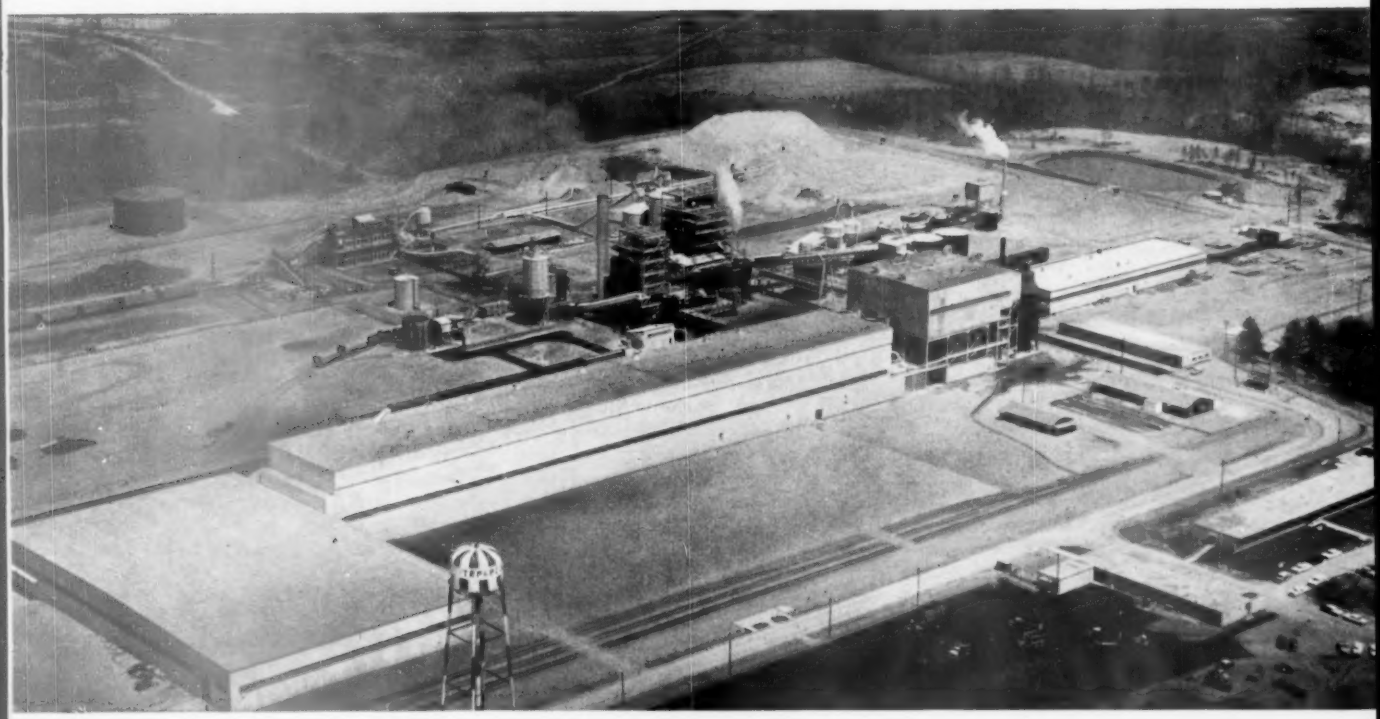
12. Methods of incorporating plastics or resins in a sheet as it is being made.

13. Definition and evaluation of all corrosion causes.

14. Ways to reduce rattle in sheets when handled.

15. Utilization of chemical by-products of wood pulping.

What makes this plant one of the best capital investments of 1961?



The basic reason is that TENNESSEE RIVER PULP & PAPER COMPANY did *not* buy this multi-million-dollar mill as an assortment of parts and services . . .

It purchased the entire project from The M. W. Kellogg Company as one complete, operating product!

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Total responsibility was given to one engineering-construction organization—Kellogg!

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16. Better knowledge of pulp refining processes and latitudes for improvement.

17. More automation to make paperboard containers more competitive.

18. Better instruments to measure pulp and paper properties and manufacturing conditions.

The mill tours and seminars held at the four mills visited worked out quite well, and are likely to be conducted at future meetings. Officers of PIMA served at each mill as discussion leaders. The mill managers and their chief assistants answered all kinds of questions.

Even labor relations and labor problems came in for a lively discussion at one of the Florida mills. The mill manager and staff did not flinch even on this subject.

At one of the mills, St. Regis, there were 92 visitors on the first day, the largest group in any of the eight tours to four mills. This was ascribed to a desire to see the giant Seminole Chief Fourdrinier (Beloit) in action. It has produced as much as 1,100 tons of paperboard in one day—world record for one machine.

Need for training leaders of the future was stressed by Tom S. Coldewey, retiring as president of PIMA, in his final bow before the group. In particular, he emphasized two points—the need for training and encouraging future leaders, and the necessity for cooperation and assistance from production men in the marketing problems of the industry. His nickname "Col. Dewey," which puts the accent on his last name, became widely known to his PIMA associates and a source of fun.

Mr. Coldewey, vice president, St. Joe Paper Co., Port St. Joe, Fla., introduced his "boss," Edward Ball, president and general manager of the St. Joe paper firm. The 73-year-old Mr. Ball, whose home is in Tallahassee, but who maintains an office and apartment in Jacksonville, jokingly referred to the high cost of Mr. Coldewey's absences and travels as PIMA leader during the past year, but Mr. Ball assured the members he was glad to make the sacrifice. **(See PEOPLE, page 23, for reports and pictures of new officers of PIMA and Industrial Affiliates).**

Paper industry can meet any future demand

but by 2000 each tree's output may have to be upped four fold

JACKSONVILLE, FLA.—Confidence that the paper industry 40 years from now will be able to compete "with many new forms of packaging, communications, and building materials," was voiced by Benjamin Slatin, APPA economist, in his talk before the PIMA convention.

In focusing on the highly competitive position into which the paper and paperboard industries have been thrust, Mr. Slatin struck the same theme of the critical need for sharpening operations through research and other means, which was elaborated upon by Battelle Memorial Institute's J. Homer Winkler.

The rewards of vigorous research efforts are already well known to the industry, and were highlighted recently in a talk by William A. Hanway, secretary of International Paper Co., to the Boston Security Analysts Society.

If production of paper and paperboard swells to 155 million tons—or 240 million tons—in the next 39 years, Mr. Slatin declared, "it will mean that it (the industry) is producing products at competitive prices, and that these products are more efficient in performing whatever services they are called upon to render than are competitive products."

He raised the strong possibility that entirely new products will be made, "such as are hinted at now in paper clothing and other fabrics, in products of knotted or twisted papers, in laminates of paper and plastics, or in new uses as far off in the future as special food board and tabulating card stock were in the 1920s."

BEN SLATIN

Mr. Slatin said he was confident that paper and board makers will be able to meet the challenge of industries seeking to invade their domain.

In whichever figure production reaches, Mr. Slatin appeared to be optimistic that new methods can be developed to boost the productivity of forests.

By 2000, he said, it might be necessary to find ways to boost output of each tree by three or fourfold.

He offered these predictions:

"Perhaps trees will be growing much faster; perhaps we will be able to utilize more than the half of the tree we now use; maybe economic ways will be developed to grow trees so that they reach pulpwood size much sooner than they do now. Possibly species of trees or other fibrous plants will be pulped for use in paper-making that are presently unusable for this purpose."

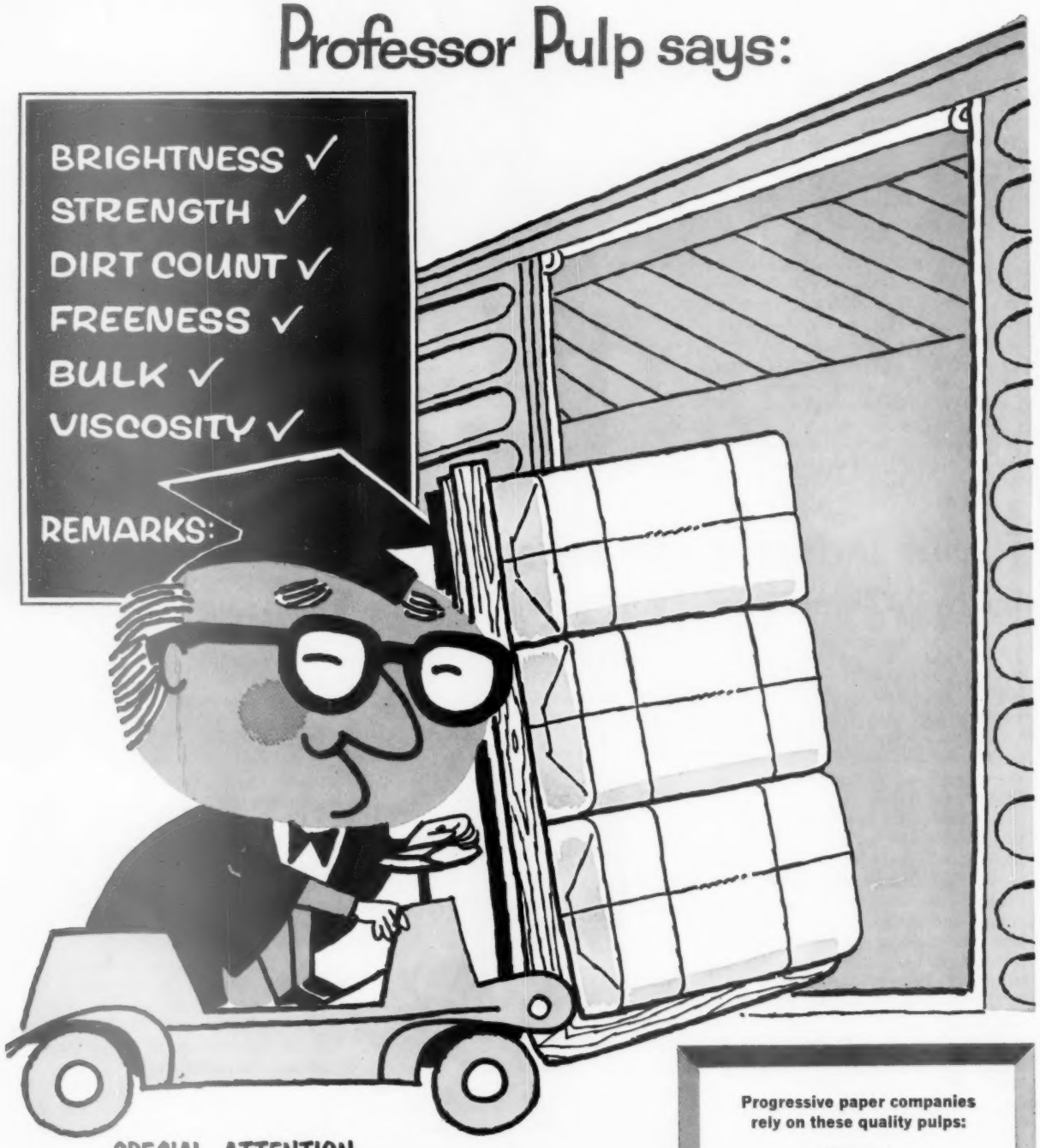
In the mill, too, efficiency would have to be honed to an even sharper edge. Mr. Slatin pointed out that last year the industry turned out 34.3 million tons of paper and paperboard with 447,000 production workers, as compared with 21 million tons, with 406,000 workers, in 1947.

Mr. Slatin warned, however, that substantial gains in production will mean higher costs, as they always have. In the period, 1947-60, the industry spent about $7 billion for new plants and equipment.

Bolstering research and engineering programs will also be required. Between 1947 and 1960, the industry raised the number of "white-collar workers" in its employment including, particularly, technical and engineering personnel—by 94%.

It is to the past the industry must turn to learn the lessons to face the future, Mr. Slatin asserted. Reviewing major achievements since 1920—such as development of the South's kraft paper and paperboard industry, and use of leftover wood chips in the West—he said that they represented "the kinds of things that must happen in the future if the paper industry is to remain competitive."

Professor Pulp says:



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Pulp, paper leaders skeptical of government figures

PULP & PAPER asked six acknowledged industry leaders what they thought of the recent government forecasts that paper and paperboard production in the U.S. would reach 240 million or 155 million tons by 2000. (Last year, production was 34 million tons.)

Four of them said the figures were suspect because they were produced to "sell" federal pollution control measures.

Senator Kerr's (Dem., Okla.) water resources committee requested the forecast from the Commerce Department. The figures are being used as an argument for increased federal government controls over future water usage by pulp and paper mills, other industries and municipalities. Such fantastically high production forecasts mean that Washington must take over authority of state pollution commissions because of a great scarcity of clean water, say the proponents of various federal pollution bills now before Congress. Sen. Kerr is author of one bill President Kennedy has endorsed.

The six leaders questioned by PULP & PAPER all of whom expressed strong doubts that such high production levels would be reached in only 39 years, included:

The board chairman of a pulp and paper company.

Three presidents of pulp and paper companies.

The executive vice president of a pulp and paper company.

The top executive of a major industry association.

Said the board chairman: "We could reach 100 million. But no one can foresee changes that far ahead."

One of the company presidents: "Long before 2000 A.D., lignin's secrets will be solved and lignin plastics will be widely used, in many cases as a paper substitute."

Another president: "The amount of water required to make paper has been greatly reduced in the past decade. Some day very little water will be needed."

The executive vice president: "Trying to guess paper output 39 years from now is an interesting mental exercise, but it is impractical. Forecasts for five or ten years can be really useful."

The association executive: "In the second 30 years of this century, the rate of increase for paper was not nearly as great as in the first 30 years. In both periods there were wars—so they were comparable. The last 30 years is likely to see the rate of increase decline further."

Senator Kerr instructed the Commerce Dept.'s Business & Defense Services Administration to forecast paper output in 2000 on the basis of a Ford Foundation prediction of national economic growth of 3½% annually. B&DSA did so, coming up with the 240 million figure.

However, the B&DSA Forest Products Division was "sufficiently unhappy with this forecast to prepare and publish one of its own, based on 3% annually, and coming up with 155 million tons," according to Ben Slatin at Jacksonville.

Although he used the figures in his talk, Mr. Slatin stated, "But I really don't know what the paper industry of tomorrow will look like, nor, I believe, does anybody else."

Industry told to double research dollar

or incur risk of losing markets to competing products

JACKSONVILLE, FLA.—The paper industry must spend twice as many dollars on product development and improvement to strengthen its market position or risk losing customers to competitive industries.

This stern warning was issued by J. Homer Winkler, technical advisor to the Battelle Memorial Institute, Columbus Ohio, to PIMA members here.

Aluminum and plastics manufacturers are waging a hard—and alarmingly successful—battle to replace paper with their products in a wide range of uses, the printing and graphics arts expert asserted.

"Research programs that have been generously supported and energetically pushed for years are now resulting in new processes and materials that can replace paper in certain cases," he said.

He declared that the $65 million that the paper industry expects to spend this year for research and development is insufficient "to insure . . . present markets and a healthy growth. . . ."

Mr. Winkler, who has worked in the graphic arts industry for 17 years, pointed out that this expenditure would amount to a little over one-half of one percent of the total sales dollars expected to be earned this year, while the average expenditure for research by U.S. industry now exceeds one percent of total sales dollars.

Chiding the paper industry for lagging behind other groups in research and development efforts, Mr. Winkler averred that its future markets "will depend upon the results of research that is done . . . and definitely will be affected by that done by competitive industries."

Aluminum and plastics have made their deepest inroads in the paper market in their use in the manufacture of packaging materials and containers of various kinds, according to Mr. Winkler.

J. H. WINKLER

Aluminum has become an increasingly important material for making cans, and containers—both of the rigid and soft types. Aluminum foil is also being made in greater quantities than ever before as a substitute for paper. Mr. Winkler quoted Robert Lucas, of Kaiser Aluminum & Chemical Sales, Inc., as predicting that production of foil will be increased to 411 million lbs. in 1970 from 248 million lbs. last year. . . . **turn to p. 15**

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Chief applications listed by Mr. Winkler in which plastics are contending with paper include flexible packages, containers, closures and adhesives used in packaging, and disposable cups and dishes.

The Battelle Institute advisor cited "boilable plastic pouches" as a new product in competition with paper containers that has resulted from the research activities of the plastics industry. Its efforts have also produced "many improved and new plastic films," which "possess a variety of interesting properties for packaging such as solubility in water, high impact strength, resistance to temperatures of about 280 F, and unusually high tear strength," according to Mr. Winkler.

"The plastics manufacturers are vigorously competing with paper for every possible packaging operation," he declared.

Other products that the management group was told it would have to beat out through greater research in today's sharp rivalry for markets were glass, and metals other than aluminum. In addition, Mr. Winkler pointed out, "Photographic, photocopy, facsimile, wire-transmission processes are being developed—some are here—that will not use paper."

The paper technician was critical of the thinking on the part of some companies expressed in the statement, "Paper can substitute for anything—but nothing can substitute for paper."

Reminding the group that, in competition within the paper industry itself, it is the "research-minded companies" that have the lead, he listed several problems that deserve special attention and increased allocations of research funds for their solution.

The former research associate of the National Bureau of Standards laid down several recommendations for companies undertaking research programs.

He advised companies to support basic research, even though it often does not yield immediate pecuniary gains, for the reason that it lays the groundwork for applied research, which does yield such gains. "At least ten percent of the total industry research investment should be studying basic principles and problems," he contended.

Conceding that most future research will be done by individual paper companies, he nevertheless recommended that companies consider the advantages of "cooperatively supported research. . . ." In such ventures, he said, a supply company or manufacturer could be included in the group. Chief advantage of this kind of setup is that costs can be shared.

Contracting for research by an outside group was highly recommended. Main advantages are that it minimizes the danger of a company's becoming "inbred" in a particular phase of operations, that it utilizes "the up-to-date knowledge of a group of specialists," and that it engages the knowledge of people who know what's going on in other industries.

But broader and better planned research can achieve growth only if it is directed toward "creating values for customers and then keeping them satisfied," Mr. Winkler counseled. He said that the industry should view itself, not simply as engaged in papermaking, but as "a vital part of the communications, packaging, and the other business fields that it serves." ■

. . . . . BUSINESS

Pulp mill for British Columbia studied

elsewhere plant expansion continues; mergers announced

PRINCE GEORGE, B.C.—A group of "large industrial concerns" are considering the possibility of building a pulp mill here, but are wary of the lack of a secured supply of wood.

Mill and forest leftovers would have to be used because the government can't grant a tree farm license in the area.

In disclosing the proposal, Lands and Forests Minister Ray Williston said recent legislation on "pulpwood harvesting areas" possibly offers a solution to the problem. Under the legislation, priority to buy pulp timber from a given sustained yield unit or group of mills can be given by the government to parties undertaking to establish an integrated pulp industry.

Protection still would be provided sawmills in the region, however. Presumably, loggers would harvest pulpwood under agreements with the pulp producers.

VINCENNES, IND.—Packaging Corp. of America continues its growth in expanded polystyrene plastics packaging, with the opening of a new plant here. It's the third such plant of Packaging Corp., making the firm the country's biggest custom molder of the plastic, says Horace Gooch, Sr., vice president in charge of packaging.

Expanded polystyrene plastic is a foam-type packaging material that "provides almost perfect cushionlike protection for delicate products . . .," according to Mr. Gooch.

Packaging Corp. picked this city as a site for the plant, because of its concentration of furniture, appliances, and electronics firms.

In addition, the company operates a corrugated container mill here, so that now it will be able to provide containers and plastic inner packing from the same location.

Mr. Gooch indicates his company plans further moves in the plastics field to broaden its related operations in plastics and paperboard.

COSHOCTON, OHIO—Stone Container Corp. announces successful start-up of the first phase of new production facilities here, which feature a Black-Clawson Co. stock preparation system, and modernized paper machine.

Output of the new equipment is 150 tons a day of .009 semi-chemical corrugating medium.

Stone Container expects to begin pulp production from Ohio hardwoods momentarily. The hardwoods will be processed by the company's new mill, which utilizes a Black-Clawson Chem-Preg Cold Soda System.

. . . INTERNATIONAL

ELSFLETH, WEST GERMANY—Diamond National Corp. will build West Germany's first molded-pulp plant here.

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The plant will produce a diversified line of molded pulp products for prepackaging foods, according to William H. Walters, Diamond's chairman and president.

The plant will be constructed and equipped in two phases, the first to cost over $6 million.

E. T. Gardner, Jr., vice president in charge of Diamond's foreign department, will direct the West German venture, as well as all of the company's other foreign operations.

The facility will be operated by Diamond's West German subsidiary, Omni-Pac GmbH, of which Dr. H. G. Brandes is general manager.

. . . MERGERS

CHICAGO – Inlander-Steindler Paper Co. has acquired Kankakee Paper Co., Kankakee, Ill.

Kankakee Paper Co., founded in 1934, will continue to operate under that name as a division of Inlander-Steindler.

ST. PAUL—Wood Conversion Co. has acquired the stock of the four-year-old Sonic Engineering Corp. of Stamford, Conn., which will be operated as a wholly owned subsidiary.

Sonic Engineering holds patents on ultra-sonic devices which it makes for the pulp and paper industry.

Wood Conversion manufactures building insulation, sheathing, wallboards, and wood fiber and mineral acoustical products.

D. M. Pattie, president of Wood Conversion, becomes president of Sonic Engineering. Dr. B. J. Gaffney, the parent company's director of engineering, is executive vice president of the new subsidiary.

Manufacturing facilities of Sonic will remain in Stamford, but sales of its products will be handled through the parent sales organization of Wood Conversion. ■

What happened in MB&PR controversy

By CHARLES L. SHAW, Canadian Editorial Director

VANCOUVER, B.C.—Discord simmering among top executives of two merged companies has erupted into open conflict. It happened when Harold S. Foley was dropped from membership in the new company's all-powerful executive committee and subsequently resigned as a director (P&P—May 15 '61, p. 11).

Mr. Foley had headed Powell River Co. for many years before it merged to become MacMillan, Bloedel & Powell River, Ltd. In his letter of resignation, Mr. Foley charged J. V. Clyne, MB&PR, chairman of the board, with prejudice and breach of faith.

Mr. Foley's resignation, of course, was only the most important of a series. A few weeks earlier, his younger brother, M. J. "Joe" Foley, had resigned as president of MB&PR, later taking the executive vice presidency of Anglo-Canadian Pulp & Paper Mills in Quebec.

Even before Joe Foley quit, John Liersch, who had been executive vice president of Powell River and later a vice president, MB&PR, resigned as a result of differences. He was quickly engaged as vice president by Canadian Forest Products, Ltd. George B. Hills and Don McLaurin, other Foley proteges, also resigned their posts, Mr. Hills as vice president, Martin Paper Products, an MB&PR subsidiary, and Mr. McLaurin as manager of the company's new fine paper mill at Annacis Island. Mr. Hills is now general manager, Stone Container Corp., Chicago, Ill.

There were other earlier resignations of former Powell River men, such as Clare Smith, who had been logging manager, and Fred McNeill, director of management services, who later took a similar post with Ford Motor Co. of Canada in Toronto.

When Harold Foley resigned, other ex-PR men joined the executive exodus, including George O'Brien, long-time vice president, who had been a member of MB&PR's executive committee; W. C. R. Jones, vice president, specialty papers, and his assistant Ken Benson. Mr. Jones had moved to B.C. from Howard Smith Paper Mills to manager Columbia Cellulose Co's. mill at Prince Rupert. He had been a Powell River vice president since 1955. He has now joined the E. B. Eddy Co. at Hull, Que., as vice president, manufacturing. Rodney Touche, public relations manager, also quit.

Although sharp disagreement between the Foleys and Mr. Clyne, leader of the MacMillan & Bloedel faction, had been well known in the industry, Mr. Foley's letter of resignation was a jolt.

In his letter to Mr. Clyne (who later declined to get into a public controversy with his former associate), Mr. Foley spoke of the high hopes of members of both companies when the merger was first made. He said there had been mutual recognition that both companies would carry equal weight.

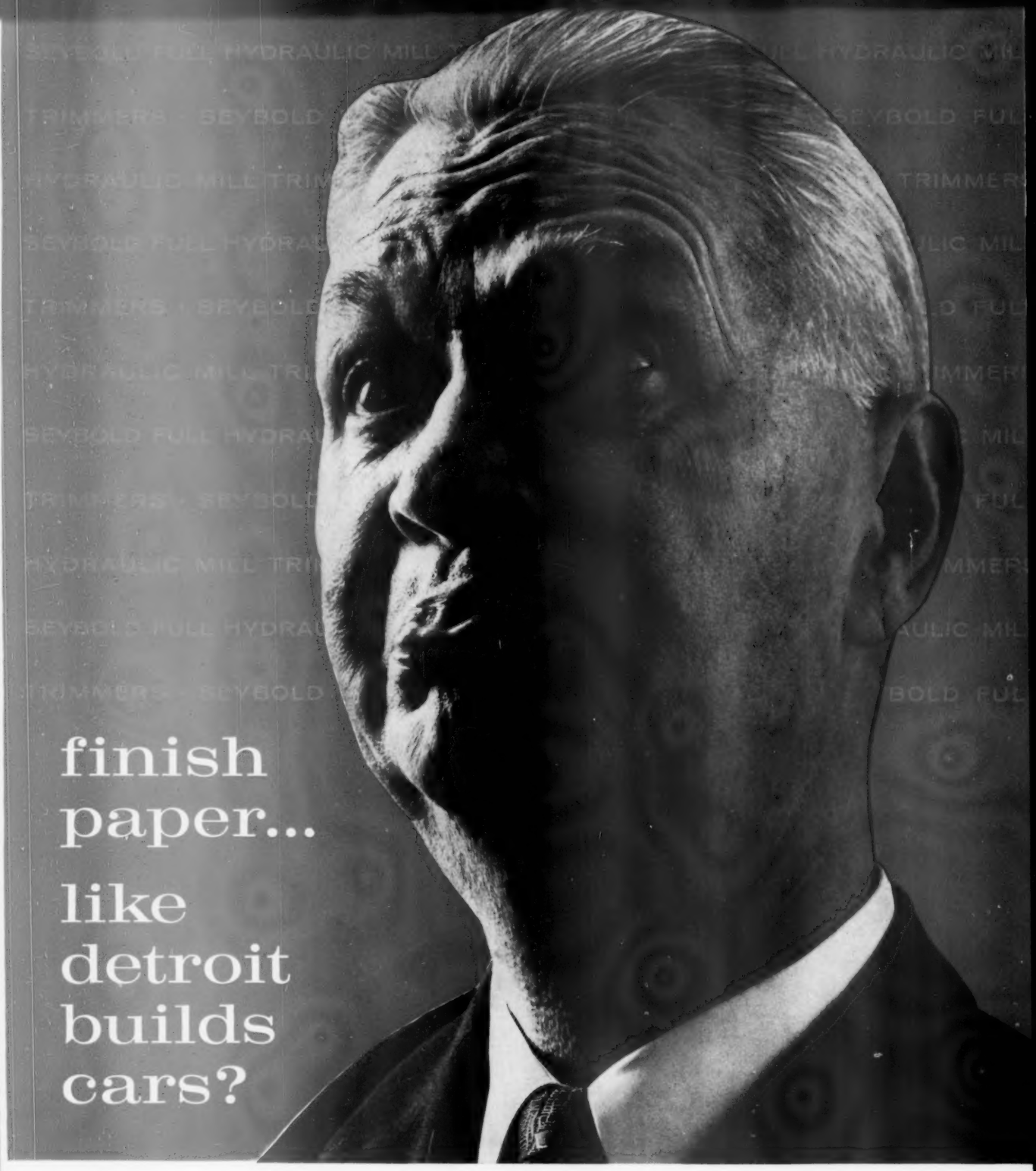
Mr. Foley contends that as a result of prejudice towards Powell River Co., the management of MB&PR had been seriously depleted and was now almost entirely in the hands of the former executive team of MacMillan & Bloedel.

Ironically, it was Powell River that had made the first move to merge, the objective being to combine the forces of two strong Canadian companies with well integrated processing facilities as well as extensive natural resources to meet more effectively the challenge of major U.S. controlled companies better able to afford extensive research and marketing operations.

The only member of the original Powell River panel of four left on the MB&PR board is Conley Brooks, an American lumberman, a member of the Brooks family identified with Powell River since its beginnings in the first decade of this century. Incidentally, the Foley family for generations have been associated with the Brooks-Scanlon organization.

To replace the Foleys on the MB& PR executive committee, Mr. Clyne announces the election of A. H. Williamson and Frank H. Brown, Vancouver men with distinguished backgrounds in financing and banking. Both have been associated with Powell River in the past, although not in administrative or executive capacities.

H. R. MacMillan resigned as honorary chairman of MB&PR when Harold Foley withdrew as vice chairman. This happened after the annual meeting. Mr. Clyne had charged Joe Foley with failure to cooperate. Mr. MacMillan keeps his influential membership in the executive committee of MB&PR, along with Mr. Clyne, Ralph M. Shaw, president, Prentice Bloedel, Mr. Brooks and W. J. Van Dusen, Mr. MacMillan's original partner when the old H. R. MacMillan Export Co. was established in 1919. ■



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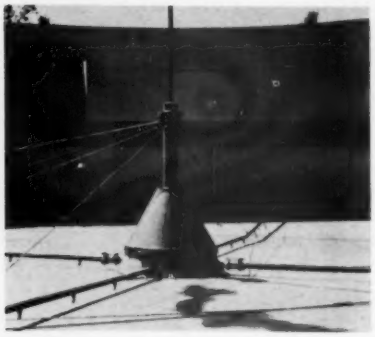
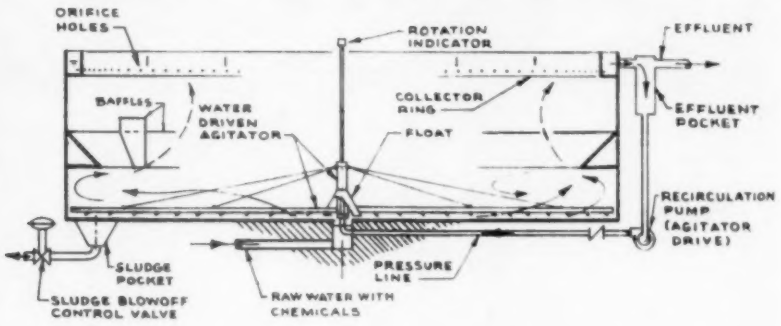




Applications: Pretreatment of water.
Features: The simplified and economical solids-contact type water clarifier is a water-jetpowered precipitator and has reportedly shown high efficiency in field tests. The clarifier is a sludge blanket type, in which the jet effect of water ejected from the tips of the agitator is the sole driving power required for the agitator. This design eliminates both electric motors commonly needed in this type clarifier and the catwalks and bracing usually required for support and access to the motor. The agitator rotates on a stub spindle and requires no overhead support.

In operation, raw water and chemicals are pre-mixed and introduced to the precipitator through an inlet at the tank center beneath the agitator hub. A conical deflector on the hub directs the water-chemical mixture outward across the tank bottom. Reaching the tank wall, the fluid mixture tends to rise but is redirected back to the center by a horizontal baffle on the wall. A rolling current pattern is thus established.

Water chemicals and sludge are kept in intimate mixture for maximum precipitation. An effective sludge blanket is formed and maintained in suspension. Sludge and heavy particles settle to the bottom, clarified water is drawn off the top of the tank.

In addition to simplification of agitator installation, the design of the agitator arm, which includes several supplementary jets that drive precipitated sludge out from the center of the tank, has greatly reduced the need for baffling within the precipitator tank. This also contributes to cost reduction in the original installation.

The type M precipitator may be installed in existing round basins as well as new tanks. A full scale type M precipitator, 60 ft. in diameter and 13 ft. deep, has been operating at a New England paper mill since August 1960. This mill draws its water from a stream repeatedly burdened by waste discharge from another mill a short distance upstream.

This installation, therefore, presented an excellent checkout source in that the water showed considerable variation in type and concentration of contaminant, and in occurrence and duration of peak loads.

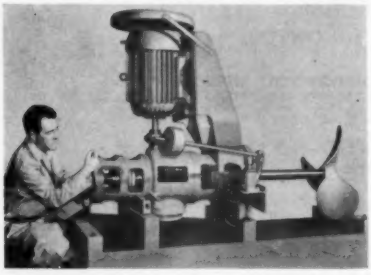
In one instance, a large amount of red dye appeared in the river as the result of upstream dumping. The appearance of the dye in the influent was carefully observed, but there was no significant change in the color of the precipitator effluent; however, sludge from the tank's bottom turned red in color.

Operating experience with this precipitator has also shown that it will begin delivering a good quality effluent within a short time after the tank has filled. It was also found that sudden variations in demand from the plant, a common occurrence, had little or no effect on the quality of effluent water. At its higher flow ranges, a precipitator accommodates easily to sudden changes in flow as much as 35%. At lower rates the same unit readily accommodates to flow changes of 80 to 100%.

Specifications: The size and capacity of the type M Precipitator currently operating is approximately midway in the range of sizes, in which Permutit plans to build the units. Flow rates will range from 150 gpm to 7000 gpm, diameters from approximately 10 feet to 100, and depths from 12 to 16 feet.

Supplier: **The Permutit Co., a division of Pfaudler Permutit Inc., 53 West 43rd St., New York 36, N. Y.**

Side entering mixers
. . . for better blending



Features: The new range of side entering mixers are said to achieve 50% greater flow or blending capacity while installation and operating costs are reduced by as much as 50% in larger units. Called Hi-Flo, a single 50 hp mixer will do the job, says the maker, of three conventional 25 hp units; a 20 hp unit will do more than the conventional 25 hp mixer. Multiple unit installations are often eliminated.

An auxiliary line of side entering mixers (series RSE) is also available for installations now requiring shock load protection afforded by hollow quill construction and independent bearing support.

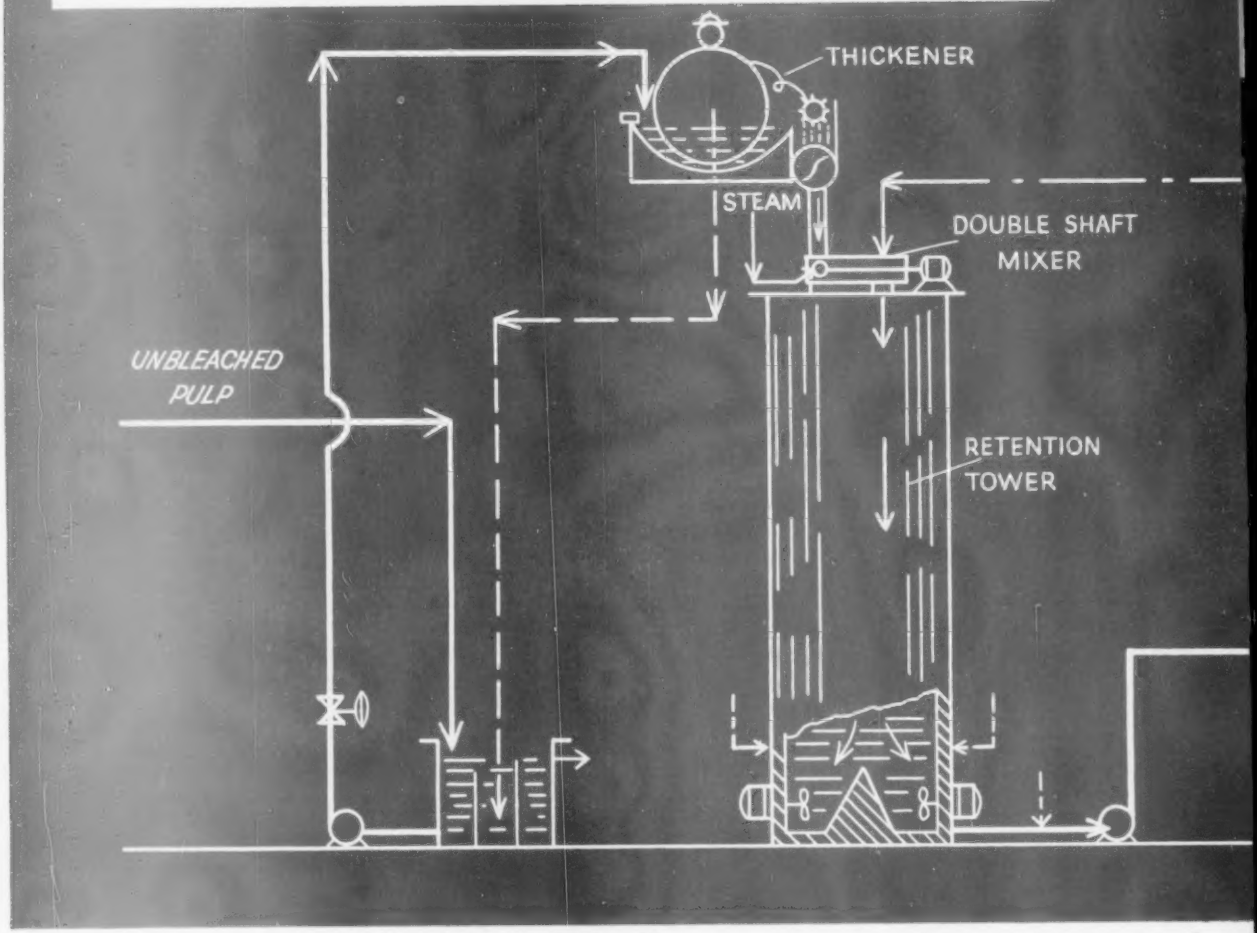
Specifications: The new NSE mixer line of side entering mixers are available in three basic sizes for applications from 1 to 50 hp. Mixers are right-angle spiral bevel gear units with hollow quill speed reducers developed specifically for side-entering applications.

Supplier: **Mixing Equipment Co., Inc., 170 Mt. Read Blvd., Box 1370, Rochester 3, N.Y.**

Belts
. . . designed for papermakers

Applications: Belt driven machinery.
Features: Four new belts have been designed to fill gaps in selection tables. Called Paper- . . . **turn to p. 66**

Blueprint for Better Bleaching . . . from Du Pont



This is a single-stage, medium-density system. It uses a combination of hydrogen peroxide

How you can use a combination of Du Pont

To meet today's demand for higher brightness in groundwood paper, Du Pont suggests that you investigate the advantages of a peroxide bleaching system such as the one shown above.

This single-stage, medium-density system uses a combination of hydrogen peroxide and sodium peroxide to make possible groundwood or cold soda pulp brightnesses in the 70-80 brightness range. This means you can produce paper with higher brightness and inherently good printing qualities. Simply by varying the amount of peroxide applied in the above system, the pulp brightness can be readily varied over a wide range as follows:

GROUNDWOOD SPECIES

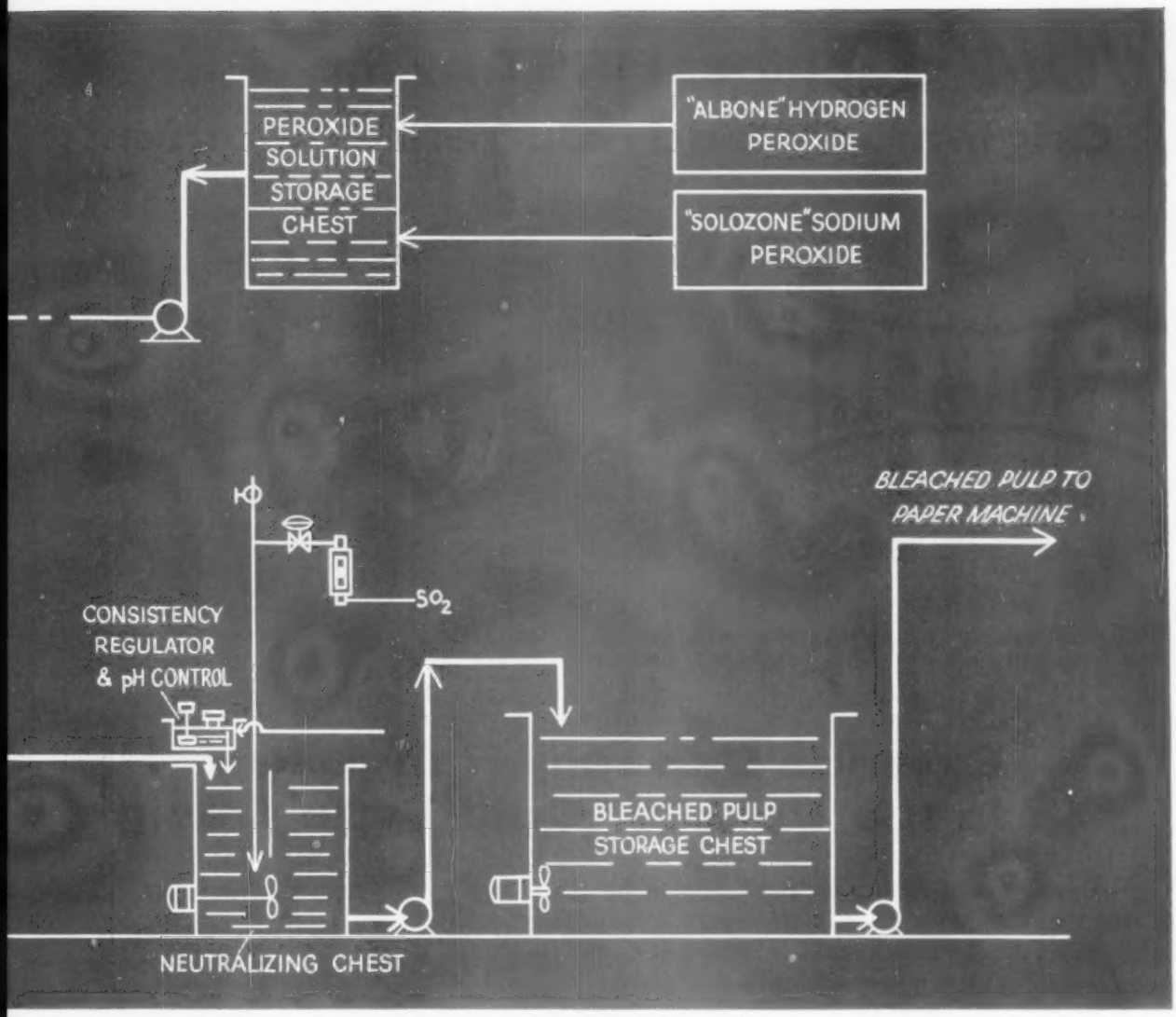
Spruce-Balsam	(60-63 Unbleached)
Poplar	(63-66 Unbleached)
Southern Pine	(57-59 Unbleached)

CONTACT ONE OF THESE MEN FOR INFORMATION:

Midwest Area
W. L. Liike, Chicago, Ill.—INdependence 3-7250

New York & Boston Area
C. R. Lombard, New York, N. Y.—LOngacre 3-6440

Or call: N. J. Stalter, Wilmington, Del.—PRospect 4-4698



nd sodium peroxide to obtain groundwood pulp brightness in the range of 70-80.

Peroxides to increase groundwood brightness

Your Du Pont technical representative will be glad to provide you with further information on peroxide bleaching of all types of pulp... suggest process layouts to fit your present plant operation. He can bring you the benefit of Du Pont's 25 years' experience in providing peroxide pulp bleaching processes—over 50 years as a major producer of both hydrogen and sodium peroxides. Contact your nearest representative listed below, or write: Du Pont, Electrochemicals Department, Wilmington 98, Delaware.

BLEACHED PULP BRIGHTNESS

1% Sodium Peroxide Equivalent	2% Sodium Peroxide Equivalent	3% Sodium Peroxide Equivalent
66-69	70-72	73-77
69-72	73-77	76-80
62-64	66-68	70-71

West Coast Area
P. E. Kiefer, Portland, Oregon—CApital 7-1281

Southern Area
R. W. Hammond, Charlotte, N. C.—FRanklin 5-5561

DU PONT PEROXIDES

ALBONE® hydrogen peroxide

DU PONT REG. U. S. PAT. OFF.

SOLOZONE® sodium peroxide

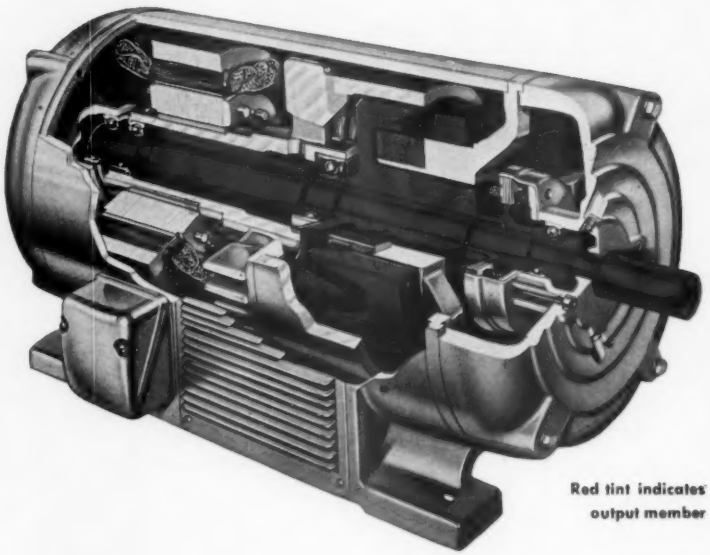
BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

NOW— another FIRST by the Originator of Eddy-Current Equipment

NEW

DYNAMATIC®

Model 905 Ajusto-Spede® Drive



Red tint indicates output member

Extends Capacity Range to 15 HP in the Popular Quill-Type Design

The addition of the new model ACM-905 to the famous ACM-903 and ACM-904 lines of Dynamatic Ajusto-Spede Drives makes the desirable features of Dynamatic Quill-Type design available for many new applications.

Dynamatic Ajusto-Spede Drives provide controlled adjustable speed from an AC power source. Standard control features include on-off clutch control, infinite speed adjustment, constant speed regulation, and jogging. Any of a variety of special features may be easily and economically added to the standard control.

All Quill-Type models are available with either eddy-current, Dyna-torQ, or fail-safe brakes.

An Ajusto-Spede Drive, a control unit (either electron tube or transistorized magnetic amplifier), and a push-button station comprise a compact, easily installed, low-cost drive package.

Check these Ajusto-Spede® Advantages

- ★ Infinitely adjustable speed from AC power
- ★ Simplified construction
- ★ Compact design
- ★ Wide speed range
- ★ Remote control
- ★ Stationary field coils
- ★ Excellent performance characteristics

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EATON DYNAMATIC DIVISION MANUFACTURING COMPANY

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Gehring, PIMA's president; Carter is fifth v.p.

New Industrial Affiliates leaders also named at meeting

C. Ives Gehring, recently named manager of paperboard procurement, Sealright-Oswego Falls Corp., Fulton, N.Y., took over reins as new PIMA president at the Jacksonville convention on June 9. He has been with the company 30 years, since graduating from Syracuse and was recently paper mill manager. He succeeds Tom S. Coldewey, vice president, St. Joe Paper Co.

Bemis P. Wood, Strathmore, moved up to first vice president; Glen "Tiny" Renegar, Container Corp., Philadelphia, to second v. p.; Larry Murtfeldt, Consolidated Water Power & Paper Corp., to third v. p. and Robert O. Stephenson, Champion Paper & Fibre, Hamilton, Ont., to fourth v. p. Harry Weston carries on as secy.-treasurer.

1961 PIMA leaders

COLDEWEY GEHRING WOOD RENEGAR MURTFELDT

CARTER WESTON CRANNELL McKAY VERDON HARTLEY

Elected fifth v.p. was Preston D. Carter. He is special assistant to the executive vice president of the Sutherland Division (Hubert R. O'Donnell) of the merged KVP-Sutherland Paper Co., Kalamazoo, Mich.

As fifth v.p. of PIMA, Mr. Carter can look forward to taking over the presidency in 1966. Recently, he was elected chairman of the Michigan division. He earned a mechanical engineering degree from Cornell in 1937 and a master's degree from Harvard Business School in 1941. In the years between, he worked for Dravo Corp. in Pittsburgh. He was born in Detroit.

After Harvard, Mr. Carter served in Army ordnance, winding up as a lieutenant colonel. He was with the KVP Co. since 1946, serving as an assistant general superintendent in the KVP operations before the merger with Sutherland.

A stocky, dark-haired industrialist, he has been especially interested in personnel and industrial relations problems. He and his wife, Jane, have a one-year-old daughter.

New Industrial Affiliates leaders are Wayne T. Crannell, Patton Mfg. Co., who succeeded Richard A. McKay, Holyoke Wire Cloth Co., as chairman of the PIMA committee; Dean H. Brosché, Corn Products Sales, succeeding Mr. Crannell as first vice chairman; and Alfred M. Hartley, Jr., Nopco Chemicals, who became second vice chairman.

Other members of the 1960-61 Industrial Affiliates committee:

Walter J. Wood, Jr., National Aniline Division of Allied Chemical; Dan C. Spencer, Orr Felt & Blanket Co.; James R. Verdon, Huyck Felt Co.; Stanley F. M. Maclaren, Penick & Ford Ltd.; William H. Eastburn, Olin Mathieson Chemical; Frank M. Younger, Appleton Woolen Mills; Gordon Petrie, Black-Clawson Co.; Robert Leahy, Hercules Powder Co.; Frank McGrath, A. P. Wagenknecht Co.; John Muller, Wisconsin Wire Works, and Joseph A. Paciello, Amalgamated Leather Co., ex-officio. Harry E. Weston is secy.-treas. of the Affiliates.

PIMA trustees: Roy Zellers, Chillicothe, O.; Harry Hadley, Middletown, O.; Al Bachmann, Keystone Heights, Fla.; Howard Street, Yorklyn, Del.; Olin Callighan, Kalamazoo, Mich., and Roy Kelly (emeritus), Wausau, Wis.

Scenes at PIMA

Former president of PIMA, **H. E. Wehr**, division manager, Mead's Harriman, Tenn., mill, and wife had nothing more important to do than read a paper at the last PIMA convention in Florida. That's the advantage of being an "Ex."

Lon Sutherland (left) and **Albert A. Nyitray** (right) watch the show go by at PIMA's meeting in Florida.

L. W. Needham (left) and **J. H. Quigley** (right) all the way from Crown Zellerbach operations in California, ride bus to a Florida mill, with other papermakers. They visited Crown Z's Bogalusa, La., mills.

YOU CAN COUNT ON POWELL VALVES

Performance proves it, year after year—you can count on Powell Valves to help you solve the toughest flow control problems of handling water, oil, gas, steam, air or corrosive fluids in the paper and pulp industry.

This truly dependable performance results from many things—among them Powell's engineering know-how, accumulated during 115 years of valve manufacture . . . and the skillful use of quality materials—bronze, iron, steel and special alloys.

Then, too, you can count on getting the Powell Valve you need, when you need it. That's because Powell maintains a network of distributors backed up by factory inventories, warehoused "ready to go."

Get the full story from your nearby Powell Valve Distributor, or write us direct.

200-pound W.O.G. Ni-resist* Gate Valves—Fig. 2193. Bolted, flanged yoke-bonnet, outside screw rising stem. Accurately guided solid wedge, renewable seat rings. Sizes, 4" through 12".

*Registered Tradename, The International Nickel Company.

200-pound Bronze Globe Valve—Fig. 2608. Union bonnet. Renewable, hardened, wear-resisting stainless steel plug-type disc and seat ring. Sizes, ⅛" through 3". Angle and screwed end valves available.

125-pound Bronze Union Bonnet Gate Valve—Fig. 2700. Inside screw rising stem, accurately guided interchangeable solid or split wedges, integral seats. Sizes, ¼" through 3".

125-pound All Iron Gate Valve—Fig. 1816. Bolted flanged yoke-bonnet, outside screw rising stem. Integral seat regularly supplied, but screwed-in seat rings can be furnished on order. Sizes, 2" through 30".

115th year of manufacturing industrial valves for the free world

POWELL PAPER MILL VALVES

THE WM. POWELL COMPANY CINCINNATI 22, OHIO

Bolton Award winners were also announced. The annual cash awards are donated by John W. Bolton & Sons Inc., Lawrence, Mass. This year the essay contest was on the subject of "Privileges of the Free Enterprise System."

First prize of $1,000 went to a paper tester, Edward L. Schuette, of Brown Co., Berlin, N.H. Second prize of $750 was awarded to Clifton J. Walker, map draftsman, The E. B. Eddy Co., Hull, Que. Third prize of $500 went to Andrew J. Rego, purchasing understudy, Kimberly-Clark Corp., Neenah, Wis.

Other prizes of $200 each went to: Robert E. Lee, Jr., quality control supervisor, Rochester Paper Co., Rochester, Mich.; H. S. James, Jr., director of public activities, Union Bag-Camp Paper Corp., Franklin, Va.; Brad Block, research analyst, Kimberly-Clark Corp., Neenah, Wis.; Mrs. Joann Graham, secretary, Industrial Relations Dept., Packaging Corp. of America, Hutchinson, Kans.; Harry M. Bowser, manager—sales services, Dairypak Butler, Inc., Olmsted Falls, O.; Thomas H. Schumann, director of industrial relations, The Mead Corp., Leominster, Mass., and Mrs. Margie Louise Cunningham, secretary, Packaging Corp. of America, Hutchinson, Kans.

The awards were announced by F. Richard Convey of Bolton.

Volumes containing winning essays will be available this fall, free, from John W. Bolton & Sons, Lawrence, Mass., or PIMA, 10 No. Clark St., Chicago 2, Ill. ■

Visitors at PIMA meeting

Frederick J. Hoffman, pres., Hydraulic Supply Mfg. Co., Seattle, makers of evaporators, tanks, etc. for pulp-paper mills, made a recent big U.S. swing, took him all way to PIMA's Florida meet.

George Hardaker, veteran Lockport Felt rep. in South, uses a friend's back to write his new home address—44 Silk Oaks Drive, Ormond Beach, Fla. For many years George lived in Asheville, N.C.

Raymond (Slim) Bullock, mgr., fiber production, Puerto Rican International Paper Co., Arecibo, visited former Southern industry friends. His mill makes 120 tpd of bagasse pulp, board and bags.

Bulkley, Dunton promotes Salb, McDermott

NEW YORK—Vice president Thomas J. Salb will coordinate woodpulp sales in New York, New England and Canada. In addition, he will represent three pulp mill suppliers: O. Dörries Paper Machine Co. of Durin, Germany; Fourdrinier wires of the United Wire Works, Edinburgh, Scotland; and New Jersey Zinc Co., for whom he will sell titanium dioxide.

Mr. Salb was formerly trade relations director of Jasper Desk Co., Jasper, Ind., before joining Bulkley, Dunton Pulp Co., Inc. in 1949. He is an alumnus of the University of Arizona and Western Michigan University.

Vice president W. S. (for Stan) McDermott will direct woodpulp sales in New England, Middle Atlantic and Southeastern states, and, in addition, represent the same three pulp mill suppliers.

Mr. McDermott has been a member of the Bulkley, Dunton sales staff since 1952. He was previously in sales and sales training at Camp Mfg. Co., Franklin, Va. ■

SALB

McDERMOTT

Scott directs purchasing for Allied

KALAMAZOO—L. R. Scott, purchasing supervisor, waste paper for mill divisions, Allied Paper Corp., has been promoted to director of purchasing. He succeeds Charles Yonker who retired June 1.

Mr. Yonker's retirement signals the completion of more than 41 years of continuous employment with Allied. He joined Allied in 1920 as purchasing agent for the King mill division, later was promoted to general purchasing agent for all Allied mill divisions in 1928. After formation of the new Allied Paper Corp. in 1956, he was named director of purchasing.

Mr. Scott has been with Allied since 1938. He has held posts as paper tester, laboratory technician at the King mill division and quality control and technical supervisor at the Bardeen mill division. ■

SCOTT

YONKER

Another Mount Vernon Dryer Felt Success Story . . .

A paper producer wanted for a bottom position, a felt which would stand 35 pounds of steam, run 600 feet per minute, give efficient drying, and yield a low cost per ton. Mount Vernon's WOODBERRY SUPER 887 was recommended. This felt ran a total of nine months giving a cost of 2.5 cents a ton. The special combination of cotton, asbestos and synthetic yarns in Mount Vernon's WOODBERRY SUPER 887, designed to increase efficiency at a great savings, chalked up another fine performance!

EXCEPTIONAL POTENTIAL FOR ECONOMY

WOODBERRY SUPER 887–Asbestos and Synthetic Reinforced Dryer Felt

This smooth-faced dryer felt of asbestos and synthetic fiber reinforcement has the ability to run in hot spots where full-faced asbestos felts are currently being used. Since WOODBERRY SUPER 887 is substantially lower in cost, this felt presents a great potential for saving, for producing paper at much less dryer felt cost per ton. Developed to serve a wide variety of paper-making applications, versatile, economical, WOODBERRY SUPER 887 has earned its standing of great popularity among leading paper producers.

MOUNT VERNON DRYER FELT FAMILY—WOODBERRY SUPER 887 is just one of Mount Vernon's full "family" of scientifically designed dryer felts. There's an individual felt for virtually every paper machine position and every paper-making need.

UNIFORMITY Makes The Big Difference

Mount Vernon Mills, inc.

A LEADER IN INDUSTRIAL TEXTILES

DRYER FELT DIVISION, 201 East Baltimore Street, Baltimore 2, Maryland • Telephone: SA 7-5845

Southwestern PIMA meets, elects officers

ANTIOCH, CALIF.—Some of the new officers and guest speakers of Paper Industry Management Assn. Southwestern Division: L to R—H. J. Bolger, Cameron Machine Co., secretary-treasurer; Al Gedman, Huyck Felt Co., affiliate representative; W. H. Richards, West Coast board mill manager, Container Corp., who spoke on "What does the Future Hold for the Cylinder Machine in the Box Board and Related Field?"; Chester Beals, Crown Zellerbach Corp., third vice-chairman; W. B. Kelley, manager Johns-Manville Corp., Pittsburg, Calif., plant whose topic was "Unemployment problems of the 1960's"; E. A. Pierce, superintendent of the Johns-Manville Pittsburg plant was meeting chairman; and Ed Cavanaugh, Fibreboard Paper Products Corp., was elected chairman for 1961-62. Other officers elected who weren't present when the picture was taken were William T. Robertson, Fibreboard, first vice-chairman; and Orville Latimer, Western Kraft Corp., second vice-chairman. Previous to the meeting at Antioch, Calif., PIMA members and friends were guests of Messrs. Kelley and Pierce and staff on a conducted tour of the J-M plant. ■

Management shifted at R-W Paper Co.

LONGVIEW, WASH.—Executive-managerial changes took place at recent meeting of shareholders and directors. This firm, jointly owned by St. Regis Paper Co. and by Weyerhaeuser Co., has been producing glassine-greaseproof papers since 1956 at its modern 14,000 tpy. plant at Longview, Wash. Russell L. LeRoux, mgr. of manufacturing, pulp & paperboard div., Weyerhaeuser Co., Tacoma, replaced D. G. Currie (formerly of Weyerhaeuser) as an R-W director. Robert W. Boyd, controller-secretary for Weyerhaeuser, became R-W secretary succeeding George S. Long Jr., formerly secretary of both R-W and Weyerhaeuser. Gareth E. Rouse, formerly asst. treas., was named treas. of R-W replacing Harold E. Nelson who is now treas. of Weyerhaeuser. In the R-W operating staff, R. E. Harper, gen. mgr., becomes vice pres.-gen. mgr.; Harry A. Hayward, sls. mgr., promoted to vice pres.-sales. Except as noted above the R-W officers and board of directors is same as last year: N. F. Becker (president), Rhinelander, Wis., dir. of St. Regis Paper; Howard W. Morgan (vice pres.), exec. vice pres. Weyerhaeuser Co., Tacoma; Maxwell H. Herriott, Milwaukee, Wis., attorney; Benton R. Cancell, New York, N.Y., exec. vice pres. St. Regis; Norton Clapp, Tacoma, president of Weyerhaeuser. ■

LATE BULLETINS: Robert J. Van Nostrand, president, Merrimac Paper Co. (from Brown Co.) Jack Sutherland, Hooker Chemicals executive, Tacoma, succeeded in Vancouver as mgr. by John McLaughlin. George Holt succeeded as mgr., Rayonier Hoquiam mill by Lowell McGinnis, because of health. Details next issue.

STRICTLY PERSONAL . . .

East

Hoff

Reynolds

Riegel Paper Corp. has promoted **Richard L. Hoff** and **Marcus T. Reynolds** to newly created posts of Northeast and Mid-Atlantic regional pulp sales managers. Both report to **Frederick M. Jennings,** manager of pulp sales. Mr. Hoff is a graduate chemist from Purdue University. Mr. Reynolds is a graduate of Williams College.

Frank X. Lantier is now eastern representative for Weyerhaeuser Co. board sales. He was recently regional board and pulp sales manager for a southern kraft mill and earlier served as New York district mgr. for Bird & Son, Inc.

W. Page Selby moves to the sales dept. of the Newton Paper Co., Holyoke, Mass., a division of Sonoco Products Co. He was formerly in purchasing at Sonoco's Phillipsburg plant. . . .

Arthur W. Plummer has joined S. D. Warren Co. as chief industrial engineer. He was previously director of research and asst. vice president, Hudson Pulp & Paper Corp., South Windham, Maine . . . **David Bookshester** is now sales mgr, adhesives division, Morningstar-Paisley, Inc. . . .

A. George Scherer has joined Penobscot Chemical Fibre Co. as pulp sales representative. He will work with **William D. Duryea** asst. vice president i/c sales.

Thomas J. Kavanagh has been promoted to assistant sales manager of B. F. Perkins & Son, Inc. He will continue to service the Middle West and Northeast areas.

Cyril I. Colby, mechanical engineer, Hammermill Paper Co's. Erie plant, has retired after 43 years . . . **H. W. Verseput** is now manager of . . . **turn to p. 54**

US CONVEYOR BELTING

Maintenance costs cut 20% to 25% with the help of US Conveyor Belts

Photograph shows complete lack of spillage while belt is running. It's the unmatched troughability that prevents spillage. The U. S. Rubber exclusive of Paracril® covers makes these wood-chip belts *doubly oilproof*. Neither carrying side nor pulley side can be harmed by wood-chip oils and resins nor by lubricating oils.

"The installation of a rubber conveyor belt system three years ago greatly assisted in reducing our maintenance costs from 20% to 25%," says F. G. Lesniak, Director of Engineering, Masonite Corp., Laurel, Miss. "Also our downtime has been sliced considerably. There has *never been a failure* in this system. Each of the four conveyor systems we used before broke down at times.

"We turn out three million feet of board each day. The entire volume of *wood chip* required to fabricate this board is carried on the rubber belt system, consisting of 25 U. S. Rubber belts operating 24 hours a day, 7 days a week. Our entire production system is dependent on the efficiency of these belts, since they supply all of our production centers, from the conveying of raw materials to the finished product for market."

• • •

When you think of rubber, think of your US Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial rubber products.

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

United States Rubber

MECHANICAL GOODS DIVISION

Rockefeller Center, New York 20, N. Y.

MEETINGS

. . . July

University of Maine Summer Institute, Orono, Me.—two sessions, July 10-August 17

. . . August

International Congress of Pure and Applied Chemistry, Montreal, Can.—Aug. 9-11

TAPPI Lignin Symposium, Edgewater Beach Hotel, Chicago—Aug. 14-16

TAPPI Testing Conference, Queen Elizabeth Hotel, Montreal—Aug. 15-18.

PIMA New York-Canadian Div., Saranac Inn, Upper Saranac Lake, N. Y.—Aug. 31-Sept. 2

. . . September

TAPPI, 11th Corrugated Containers Conference, St. Francis Hotel, San Francisco, Calif.—Sept. 6-8

CPPA, TAPPI, Fourth International Mechanical Pulping Conference, Edgewater Beach Hotel, Chicago—Sept. 19-21

Northeastern Div. PIMA, Poland Spring House, Poland Spring, Me.—Sept. 21-23

British Paper and Board Makers Assn., International Fiber Bonding Symposium, Oxford, England—Sept. 25-29

. . . October

TAPPI Deinking Conference, Hotel Harris, Kalamazoo, Mich.—Oct. 4-6

PIMA Conn. Valley-TAPPI N.E. Section Joint Conference, Equinox House, Manchester, Vt.—Oct. 5-7

TAPPI, plastics paper conference, French Lick Sheraton, French Lick Springs, Ind.—Oct. 9-11

Southeastern & Southern Divs., PIMA annual fall joint meeting, Jung Hotel, New Orleans, La.—Oct. 11-13

Pennsylvania - New Jersey - Delaware PIMA, fall meeting, Claridge Hotel, Atlantic City, N. J.—Oct. 12-14

TAPPI Annual Engineering Conference, Shoreham Hotel, Washington, D. C.—Oct. 15-19

National Safety Congress, annual meeting, Hotel Hilton, Chicago, Ill.—Oct. 16-20

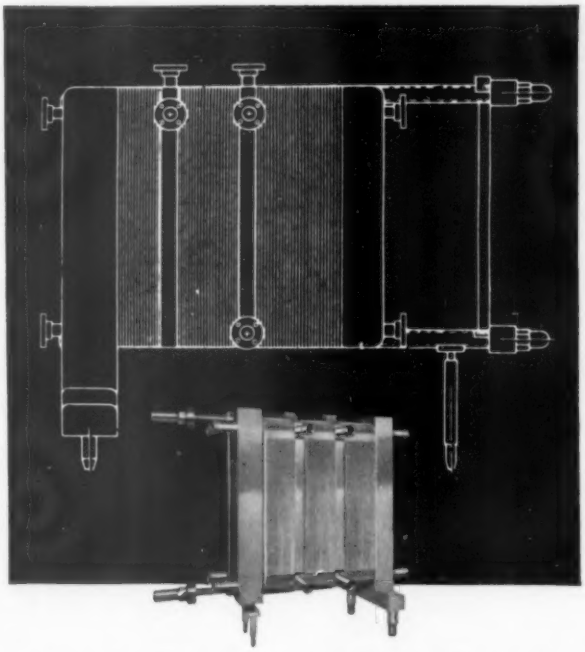
Packaging Institute, 23rd Annual National Packaging Forum, Biltmore Hotel, New York—October 18-22

PIMA, Miami Valley Div., annual meeting, French Lick Sheraton, French Lick, Ind.—Oct. 19-21

National Paper Trade Assn. fall convention, Conrad Hilton Hotel, Chicago—Oct. 22-25

. . . November

TAPPI, Annual Alkaline Pulping Conference, Rice Hotel, Houston, Texas—Nov. 1-3



BILLIONS OF BTU's RECLAIMED from spent sulfite liquor ...by De Laval Plate Heat Exchangers

Many pulp mills are using De Laval Plate Heat Exchangers to reclaim heat from spent sulfite and blow steam condensate. The savings are impressive. In a typical installation a 15′ x 3′ x 6′ De Laval Exchanger recovers 14,000,000 Btu hourly, and only requires 1600 sq. ft. of heat exchange surface to do the job. The all-stainless construction is unaffected by the corrosive sulfite and requires virtually no cleaning or maintenance. Savings are approximately $60,000 a year.

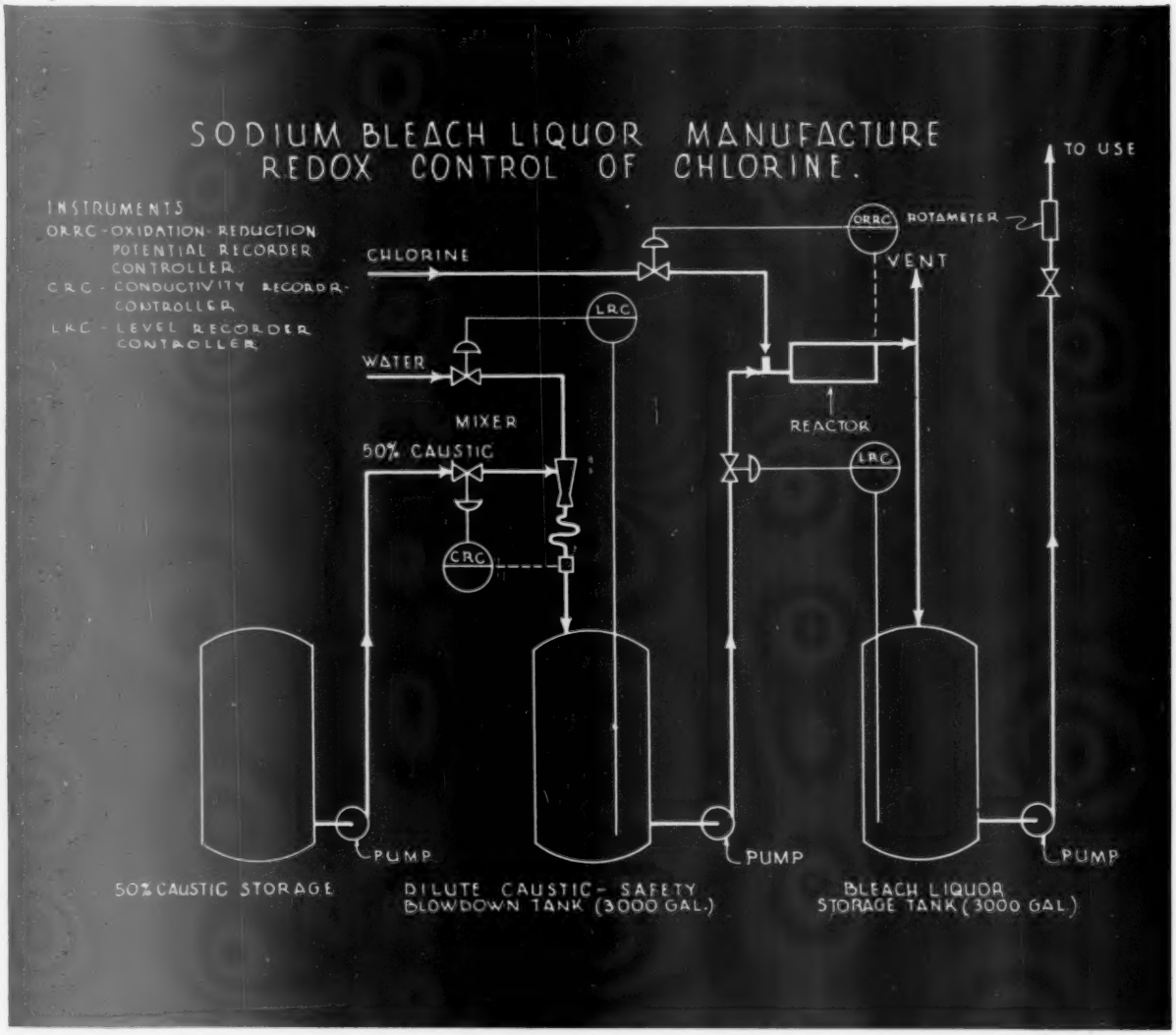
These units are so compact that they are usually installed in "waste" space, requiring only piping connections. Stream capacities range to 500,000 lbs/hr. De Laval Plate Heat Exchangers can be tailored to present plant needs, yet provide for very economical expansion at any time.

Write for details on these economical and efficient means to waste-heat savings. They are ideally suited to the low-cost processing essential to modern pulp-mill operation.

THE DE LAVAL SEPARATOR COMPANY

Poughkeepsie, N. Y.
5724 N. Pulaski, Chicago 46, Ill.
201 E. Millbrae Ave., Millbrae, Cal.

DE LAVAL



How to make bleach liquor automatically and continuously

With this simple Hooker system you can produce sodium hypochlorite* continuously and automatically. Control of bleach-liquor composition is automatic, resulting in more uniform bleach and an improved final product.

Chemical costs are at a minimum, because excessive chemical usages are eliminated. Labor costs are also at a minimum, since the plant operates automatically and requires only occasional supervision. Installation costs are lower, because large reaction and storage tanks are not needed.

How the System Operates—50% caustic soda and dilution water are metered to a caustic-dilution tank. A level-controller adjusts the flow of water to match the rate of withdrawal of bleach from the unit.

A conductivity controller meters the 50% caustic solution to maintain a constant dilute caustic concentration (3-5%).

Dilute caustic soda solution is pumped through a custom-designed Hooker reactor, of which there are several types, and combines with chlorine to form soda bleach.

The flow of dilute caustic is controlled by a level-controller in the bleach-liquor storage tank, while the chlorine addition is controlled by the oxidation-reduction recorder controller.

If you need relatively large amounts of 30-to-40-gram-per-liter available-chlorine bleach liquor on a continuous basis, this Hooker system can cut your costs by a considerable margin while giving you the top quality you want. For more information on this process, write for Bulletin No. 251, "Continuous Bleach Liquor Manufacture."

*A similar system with a modified reactor is available for calcium hypochlorite.

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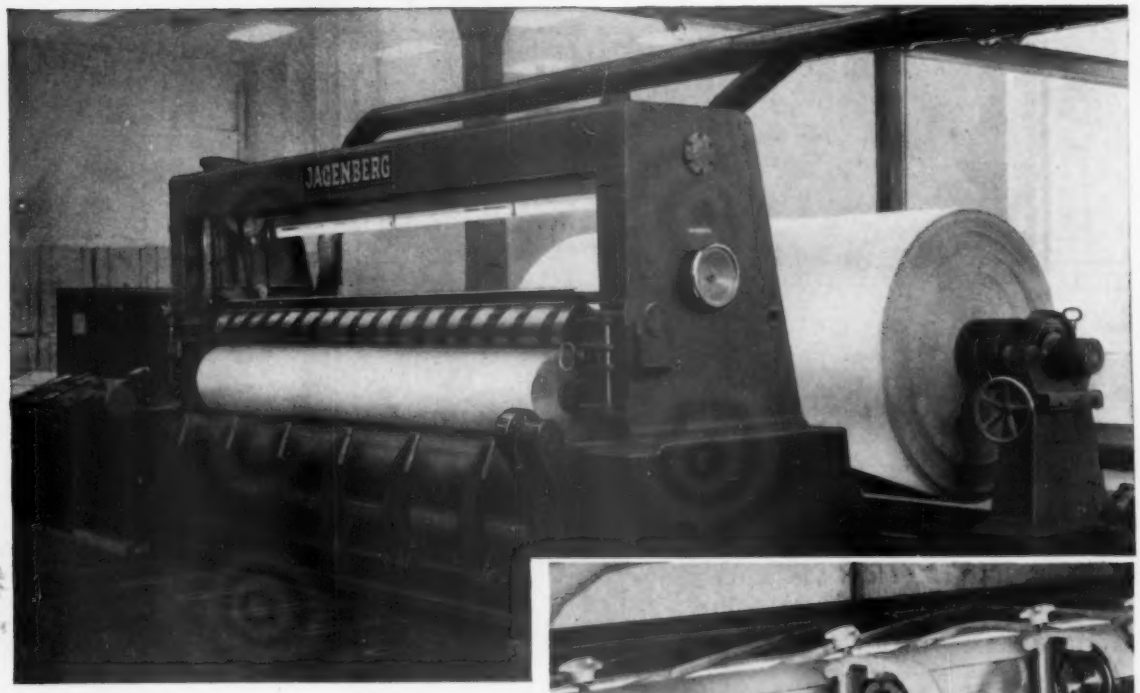

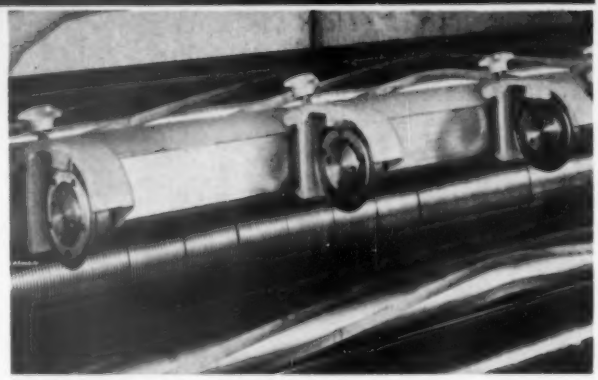

Multi-Shear Slitters: a true shear cut with the setting ease of a score cut.

PNEUMATIC WINDER

The machine pictured here is a 142" wide Type 30 Winder in a German Board Mill, slitting and winding coated and uncoated folding boxboard.

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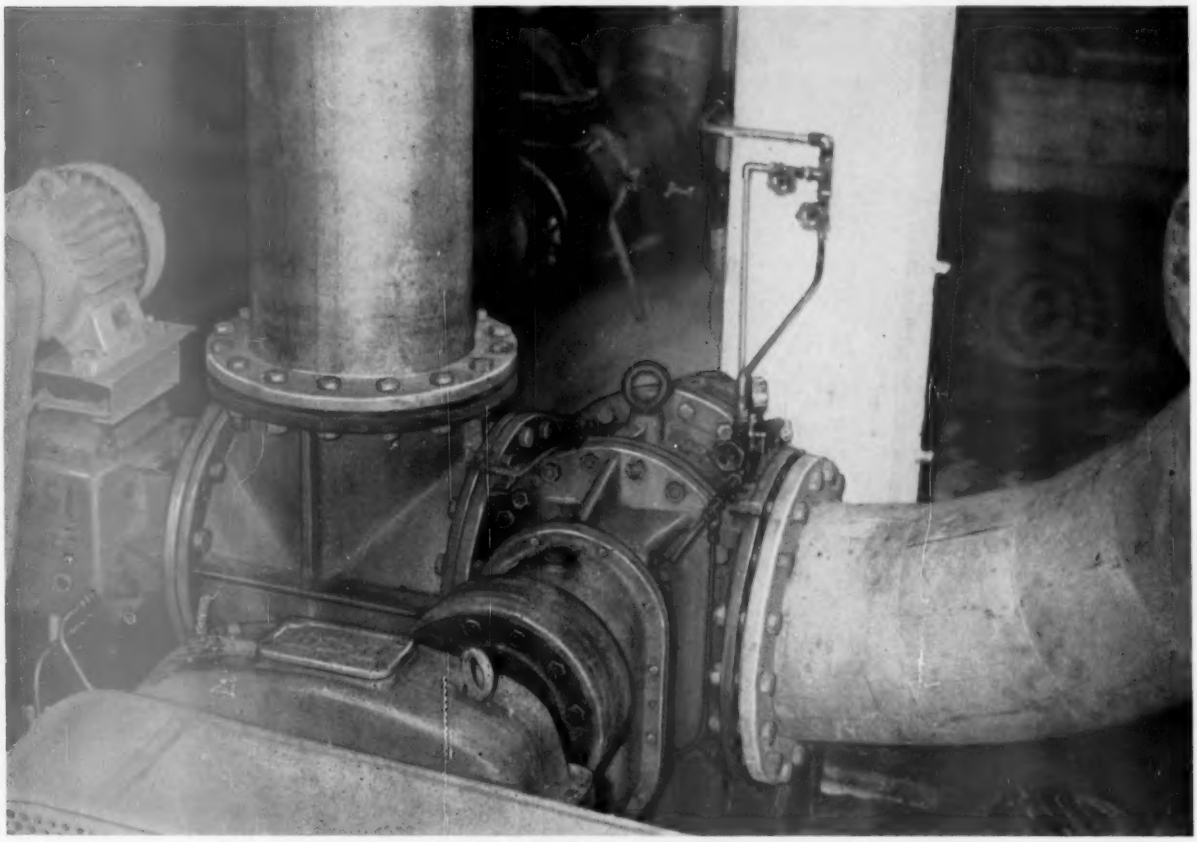

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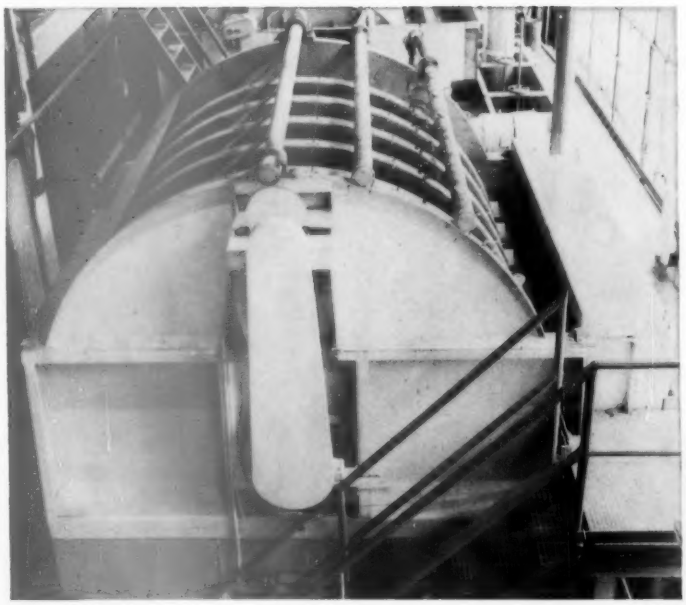
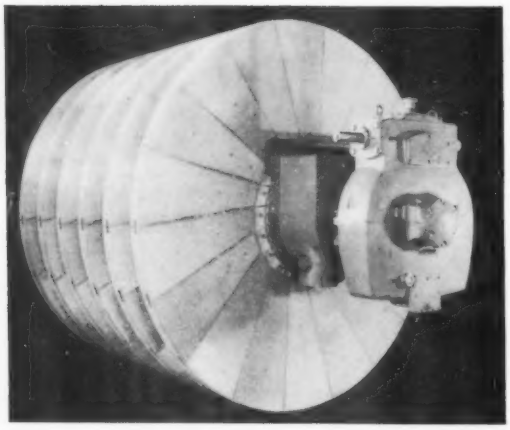
NEW IMPCO

Disc Type Filter Design

At Scott Paper Company, Mobile, Alabama



Molded Discs and One-piece Stainless Core Raise Capacity and Clarity Standards — Due to New Hydrodynamic Design Concept.



Close up your white water system with the new Impco Disc Filter! This saveall concept, with its molded sectors and one-piece stainless core, is a fresh approach to disc type filtering. Hydrodynamic design and latest materials now give you a truly ultramodern filter.

Swept back, molded, lightweight, bonded-face sectors increase capacity and wire life. Contra-flow inlet eliminates pulp thickening in vat. Eighteen ported trunnion and full 180° valve opening produce sharpest filtrate separations. Speeds from ¾ to 4.5 R.P.M. Ask your Impco Sales Engineer for full information and write for Bulletin A5-1.

Above: Six-disc unit minus vat, showing valve and dual filtrate discharge. Filters available in sizes up to sixteen discs. Keyed aligning and attaching device makes assembly of a complete disc the simplest yet. A complete disc consisting of eighteen 22 pound sectors is assembled in one hour.

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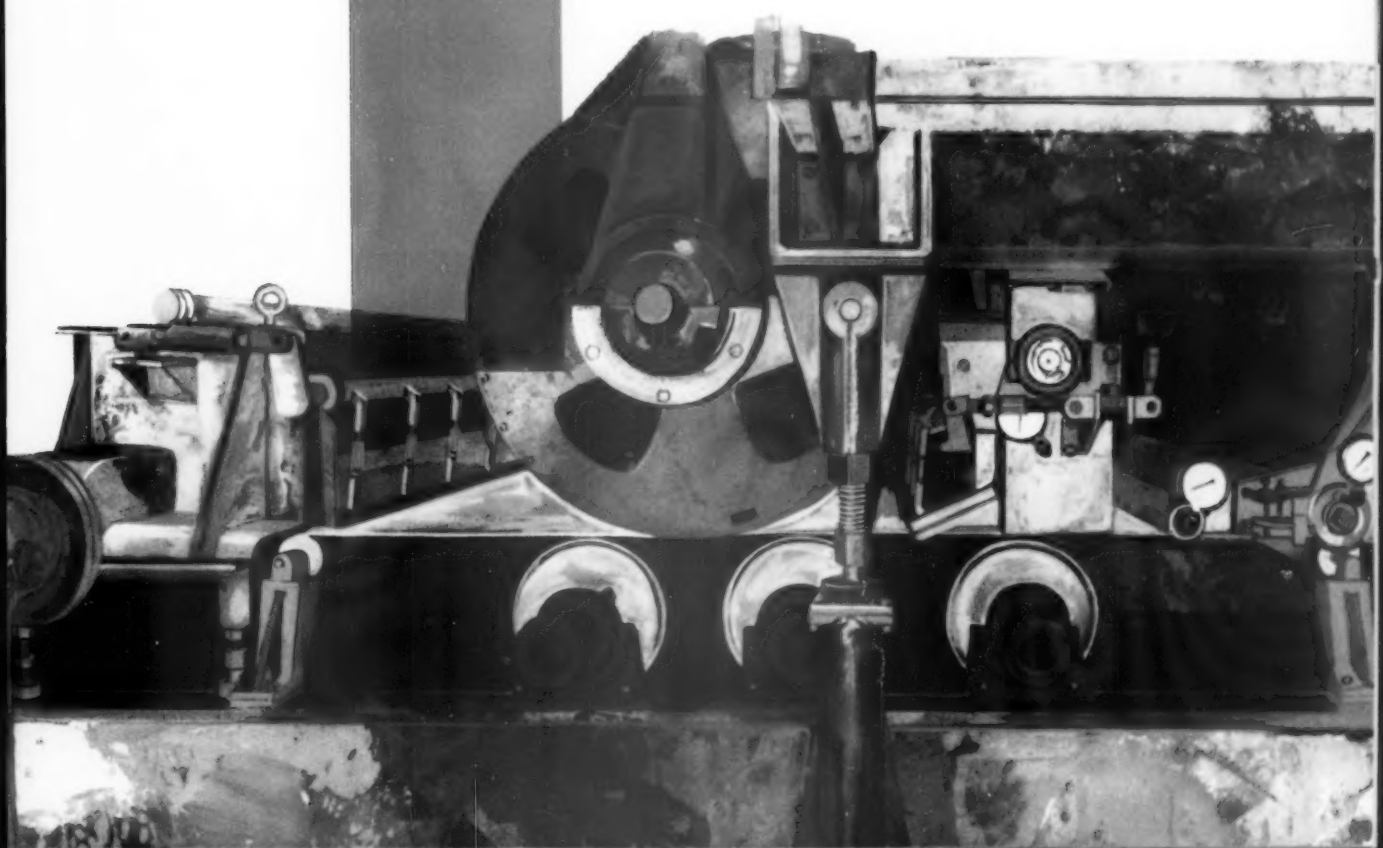
what dramatic
new developments
does the

INVERFORM

bring to
papermaking?

for answer, please turn page



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offers new horizons to the paper industry

This new papermaking technique, embodying both Fourdrinier and cylinder machine principles, can be used in both paper and board manufacture. Inverform is a forming device which reorients fibers following their initial delivery to the wire and accomplishes water extraction in the two vertical planes. Inverform introduces the possibility of producing grades with new and improved characteristics at higher speeds than now possible, and offers the potential of new products now unknown to the industry.

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(BELOIT IRON WORKS builds Inverforms under license from ST. ANNE'S BOARD MILL CO. LTD.)

*Patented United States, United Kingdom and others

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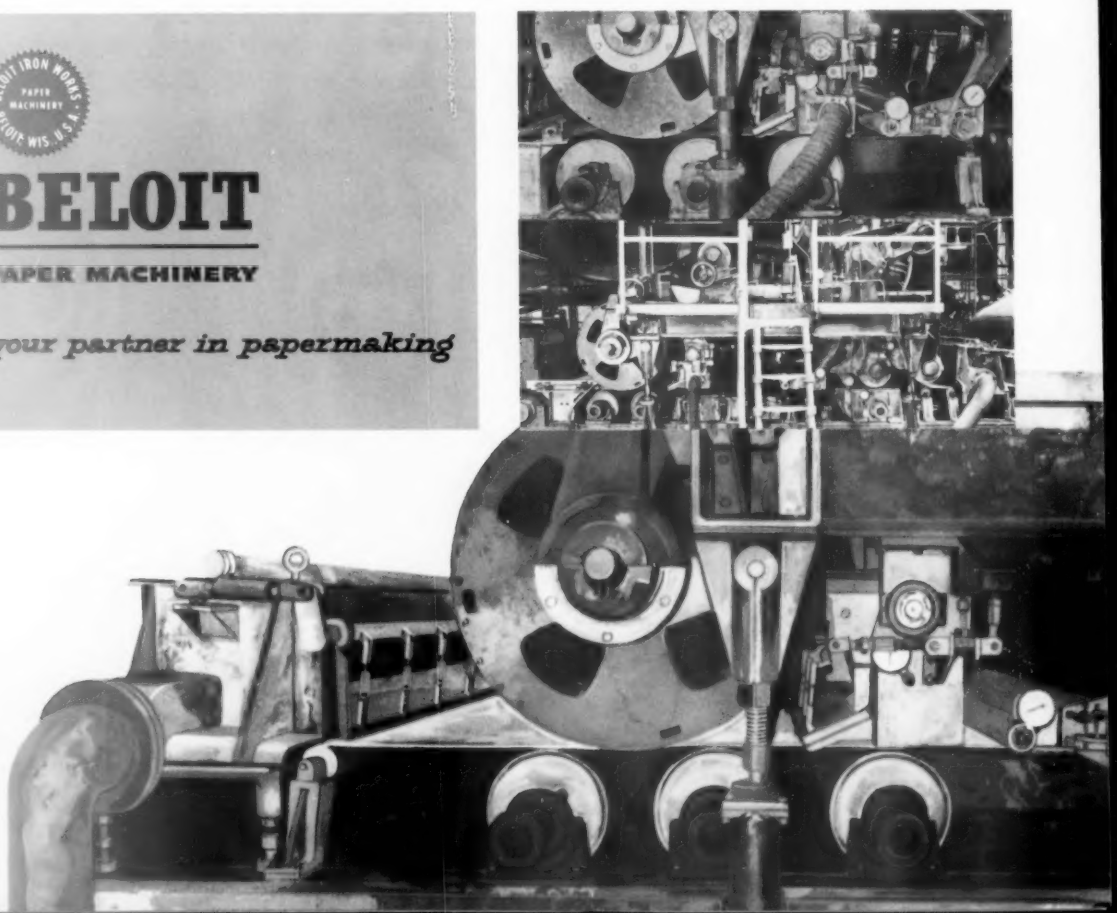

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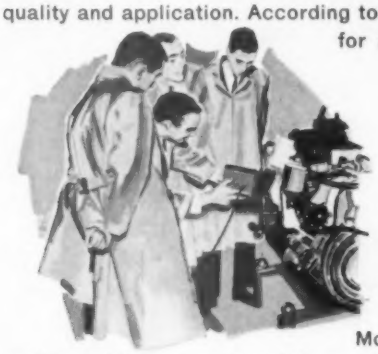

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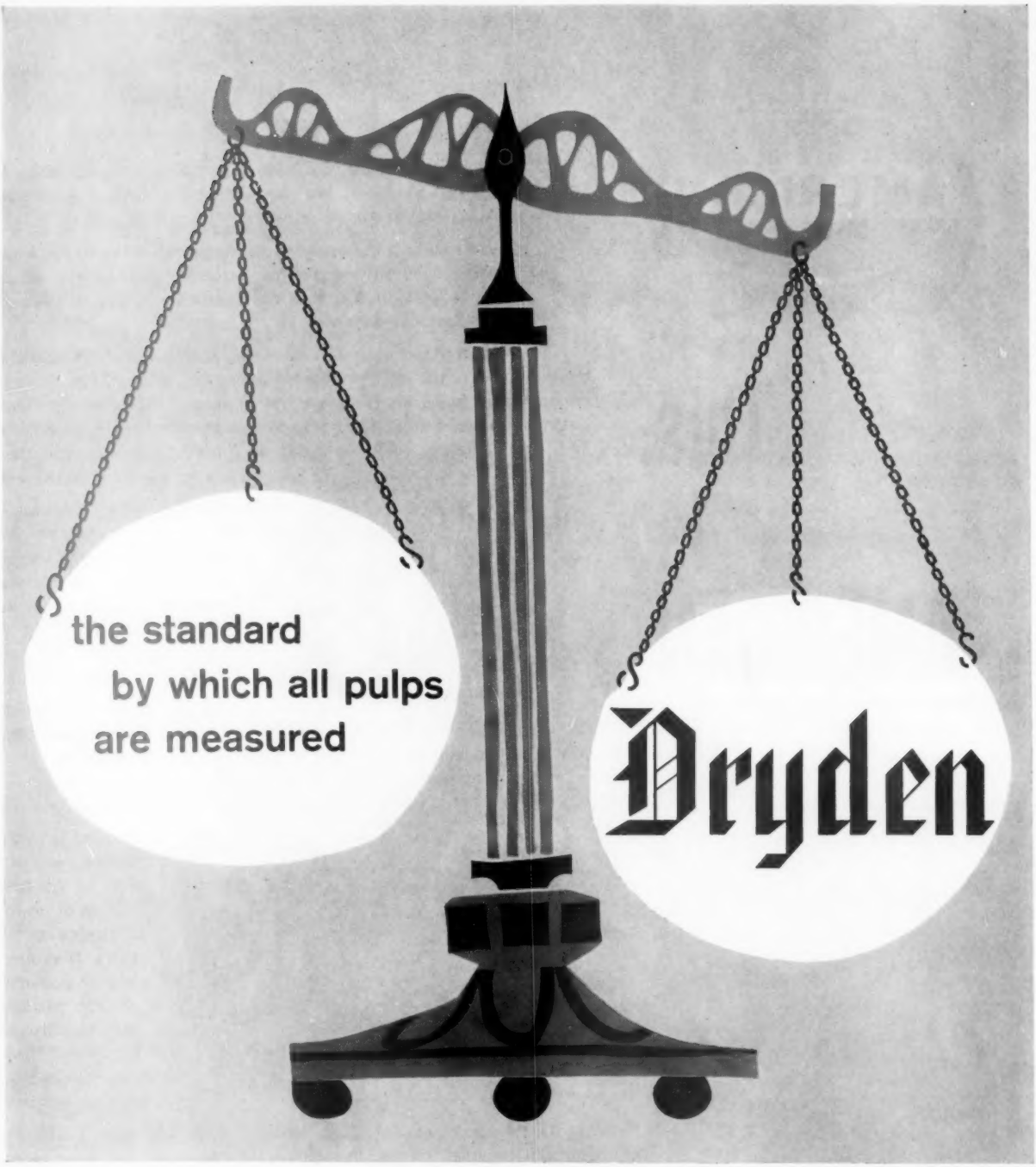

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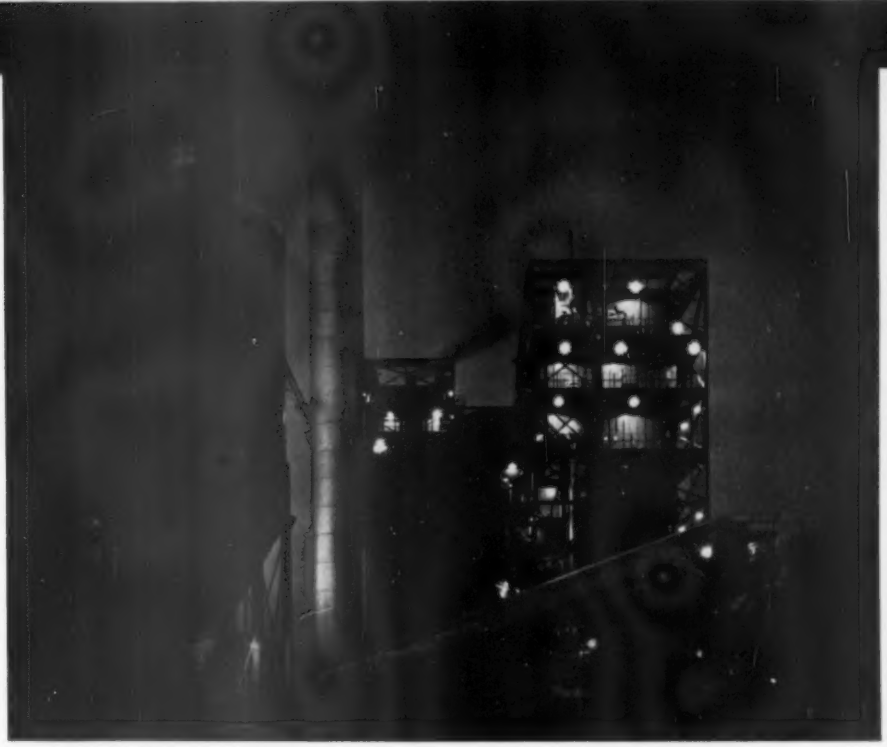
PULP & PAPER

June 26, 1961

Incorporating several of the industry's more successful ideas, Tennessee River starts up as ....



OUTSIDE CONSTRUCTION is featured in mill's power group.

South's Newest Paperboard Mill

Counce, Tenn.

SINCE THE NEWEST PULP AND PAPER MILL of the South was started up here on March 12, it has run less than two days of off-grade paperboard and that was entirely in the first week of operation. This was no great surprise to the planners, engineers and operators of the Tennessee River Pulp and Paper Co. mill. They are well aware of the more than six years of careful preparation by President G. W. E. Nicholson and his staff and associates, and by the manufacturers of equipment.

With a minimum daily capacity of 500 tons of linerboard, the mill nevertheless has had no difficulty in hitting 650 tons a day quite often.

The three owners of this mill are Packaging Corp. of America, which is allocated 52% of output, Bell Fibre Products Corp., which gets 26%, and St. Regis Paper Co., which gets 22%. The board goes to their various box plants in the Midwest.

For the M. W. Kellogg Co., New York, internationally famed in the chemical process field of the petroleum industry, the mill was its first big construction project in the pulp and paper field. Its engineers collaborated with those of the Howard A. Simons firm of Vancouver, B.C., which has designed and engineered many big mills on the American continent. This was the team selected by Mr. Nicholson, and he was in active overall direction.

It took two years for actual construction of the mill. Prior to that, Mr. Nicholson selected the site from five optioned locations in Tennessee and Alabama, and built up a wood backing. The company owns 160,000 acres of timberlands in Tennessee, Alabama and Mississippi, but more than 50% of its timber needs will be purchased from small landowners in the region.

The mill is one of the lowest cost and best situated in the world. Outside storage of wood in the form of chips instead of logs and pneumatic conveying of chips provide a major saving. The use of maximum instrumentation, "open" type boiler and evaporator construction, hot stock refining, hot stock screening, and completely remote control of all steps in cooking, refining, screening and washing are other important features.

EVERY PULPING PHASE is completely controlled from here. Instrumentation has been used wherever practical.

(These and other unusual features of the mill are listed in the report on the open house for industry leaders on page 3 of this issue.)

An advanced forestry program has been adopted, with 25 graduate foresters employed. Pine stand maintenance and periodic thinning, girdling and other methods of eradicating undesirable hardwoods, the planting of 30 million pine seedlings, with 5 million more to be planted each year—these are main features of the forest program.

Separate cooking of pine and hardwood allows for the use of a larger percentage of hardwood than usual, and improvement of the quality of the linerboard. Later there will be four, instead of two, lines of pulp production, affording two types for top and bottom liner.

The site of the Counce mill is on two elevations. Below the mill on the lower elevation is a cultivated area. There is ample space for doubling mill capacity, when desired. Actually, it would be possible to boost production to 2,000 tons a day.

The 262-inch double inlet Beloit Fourdrinier machine, of course, is an important unit of the mill. It is highly interesting that this machine is driven by belts—but in this case, the narrow, strong Extremultus belt. Thus, the industry seems to have progressed from belts (the wide ones of old days) to hypoid drives, then to differential drives, and now back to belts again.

Pulping innovations: hot stock refining . . .

and remote control of digesting, refining, and washing

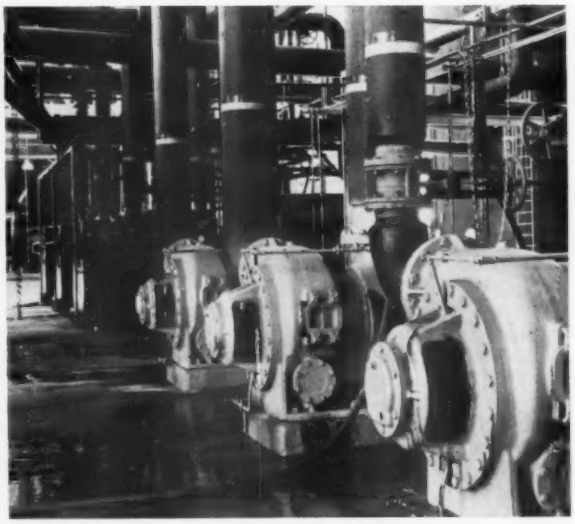
ALL PULPING OPERATIONS, from chip bins to high density storage tanks are remotely controlled from a central control room. Black and white liquor is metered into the digester from storage by indicating and integrating meters that automatically stop pumps and close valves at a preselected volume.

Steaming is controlled by flow during the early stages and automatically transfers to digester pressure control during the latter stages of steaming. Relief flow is automatically controlled inversely proportional to steam flow. Charts record steam flow, relief flow, digester pressure and temperature at two points in the digester. Digester relief is passed through an entrainment separator to a turpentine condenser.

The four 6,100-cu. ft. digesters are connected to blow line manifolds. One blow tank is for hardwood; one for pine. Blowing is by remotely operated motorized blow valves. Vapor lines from the two blow tanks pass the vapor to a common blow condenser mounted on top of the blow heat accumulator. The pine blow tank has a capacity of 24,000 cu. ft.; the hardwood blow tank, 17,500 cu. ft. Both tanks have bottom entry, vertical, three blade sweep type agitators. The load on these agitators automatically regulates blow tank consistency.

Stock from the blow tanks is handled separately and differently. Pine stock is pumped by a hydraulically controlled variable speed coupled pump through a breaker trap. Pressure on the discharge side of the breaker trap regulates pump speed. Stock passes from the breaker trap through two refiners in series and then to a hot stock screen. Accepted stock passes to a three-drum, three-stage set of vacuum washers.

This is duplicated with a second set of refiners, screen and washers with a third screen serving as a spare to either line of washers. Both lines discharge into a common screw conveying system to the pine high density storage tank. This is a flat bottom tank of 120 tons capacity, with mining nozzles and agitators. Rejects from the hot stock screens drop into a reject surge tank. Rejects are pumped back to pine blow tank for another pass through refiners.



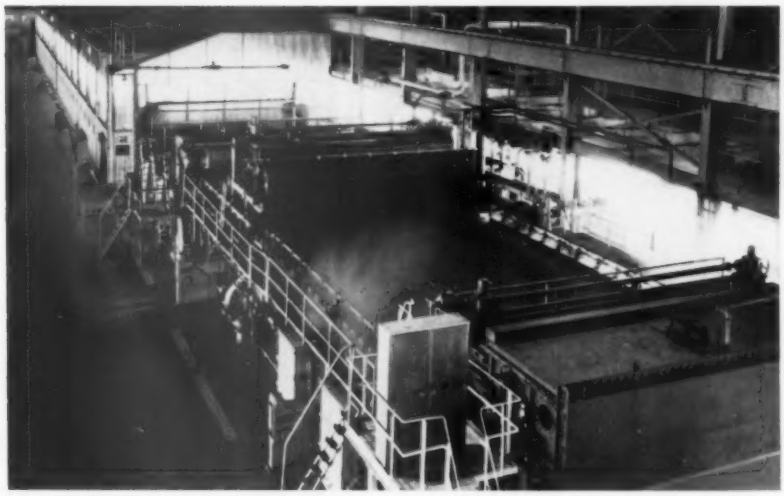
HOT STOCK is first treated in the breaker trap, and then passes through two refiners to the hot stock screen.

Hardwood has a similar pumping system and breaker trap, but no refiners. Stock passes from the breaker trap to the hot stock screen. Accepted stock passes to a three-drum, three-stage vacuum washers. Washed stock is screw-conveyed to high density storage. This cone bottom tank has a blow tank type agitator and consistency control system with a capacity of 60 tons. Rejects from the hardwood screen flow to the common reject surge tank and are processed with the pine screen rejects.

Hot water for all washers is pumped from the blow heat accumulator through a strainer to the washers. Water temperature is regulated by steam addition to accumulator or cold water addition to pump feeding the washers.

Paper machine has two pressure headboxes

Its wire is 262 in. wide and 153 ft. long. . . . Wire and table rolls are fiber glass-covered. . . Scanning radioactive gauge controls weights and uniformity



PRIMARY AND SECONDARY washed stocks are stored at high density, with provisions for removal at controlled consistency. Primary high density storage capacity is 120 tons; secondary is 60 tons.

From high density storage diluted pulp is pumped to leveling chests. These are of tile construction and equipped with propeller-type agitators. The capacity of the primary leveling chest is 10 tons and of the secondary 10 tons, at 4.5% consistency in each case.

Stock from both leveling chests is pumped through consistency regulators and adjusted to about 4% consistency, before being delivered to the refiners. There are nine disc-type pressure refiners. Two are driven by 700 hp synchronous motors and are used as ticklers. Seven are driven through reducers by 700 hp turbines and are usable in various combinations to refine the stock to the primary and secondary machine chests.

Stock from the machine chests is pumped through the final consistency regulators, tickler refiners, and magnetic flowmeters on its way to the suctions of the respective fan pumps. In both the primary and secondary systems, screens are located in the lines to the machine headboxes. Rejects from these screens are returned to the saveall chest.

Dry broke is reduced by a pulper under the last dryer, calenders, and reel. This broke together with trim and broke from the couch pit is pumped to a tile tank adjacent to the machine room. The tank is 35 ft. high and 32 ft. in diameter, contains 10 tons of stock at 3% consistency.

Broke is returned through a breaker trap to the saveall, an 11½-ft. by 16-ft. vacuum filter using sweetener stock from the leveling chest and delivering thickened stock to a chest from which it is pumped back to the primary system. Any unused process water escapes to the sewer only after removal of suspended fiber by filtration on this machine.

Magnetic flowmeters measure both primary and secondary stock flow to the machine, also permit controlled use of mixtures of either stock and broke.

Starch is received by bulk shipment and metered dry from a storage tank for continuous cooking. Facilities permit its use either for water box application or wet end addition. Provisions for controlled addition of sulfuric acid, alum, and wet strength resins are also included.

Centralized control of stock preparation is facilitated by electric controls and instruments on a panel on the operating floor near the refiners and saveall and also near a pulp testing station.

The Fourdrinier machine has a 262 in. wire, 152 ft., 11 in. long. It is equipped with both primary and secondary pressure headboxes. Drive and supporting equipment includes a 54-in. suction couch roll, 42-in. lump breaker, 38-in. wire drive roll, three 18-in. and four 28-in. diameter wire return rolls of which two are driven, 38-in. breast roll, and 24 table rolls. Wire and table rolls are fiber glass-covered. The Fourdrinier is provided with a 36-in. dandy roll, eight 15-in. suction boxes and multiple unit shake.

The press section includes a first suction press, a second suction press, and a smoothing press. The suction rolls are 44 in. in diameter, rubber covered. Top press rolls are 38 in. in diameter, rubber covered. The bottom smoothing press is Microrok covered. Two press felts are used, with a conditioner on each.

There are four dryer sections with breaker stack between the second and third sections. The four sections comprise 64 paper dryers, two Feeney dryers, and four felt dryers. In addition there are four inter-calender dryers. All dryers are 60 in. in diameter and designed for steam pressures up to 150 lb. The dryer section has a closed hood and conventional vapor removal system. The rope carrier is especially arranged to prevent broke fouling the system.

There are two open-sided calender stacks, eight rolls each. Bottom rolls are 40 in. in diameter. Intermediate and top rolls are 18 in.

The reel has a 48-in. diameter constant speed drum suitable for making reels up to 88 in. in diameter.

Continued on page 69

G. W. E. NICHOLSON, President

W. I. OSBORNE, JR., Chairman of Board of Directors

E. M. LEAVITT, Vice Pres., Res. Mgt.

Tennessee mill's biggest story is people

THE RECRUITING of salaried and hourly workers for the new Tennessee Pulp & Paper Co. mill and operations at Counce, Tenn., was one of the most thorough and painstaking projects of this kind in this industry's history.

Anyone who knew President G. W. E. Nicholson's personal predilections on the way to staff an industry could have guessed this would happen.

The pictures of staff on this page represent the results of a most careful search for the right man for the right job. Only one of the mill staff men shown is *not* a Southerner by experience or birth and in his case this particular Nicholson predilection was waived because of his other outstanding qualifications.

The average age of both the mill salaried and hourly workers is 31 years. Youth matched with intelligence and ability were cardinal objectives in the employment search.

Over 15,000 applicants were screened for roughly 350 jobs, according to Don Pichon, Jr., who is industrial relations director. The ones who passed the screening and were hired were interviewed by five different persons. Personal habits, credit standing, etc., were among many facets under scrutiny. In the training and operation period of several months now, there has not been one single "bad apple" turn up. Not one dead-beat; no drink problems.

Employes came from 35 different Southern kraft mills. Nearly every man worked at one time or another under one of the supervisors, or at least supervisors had some information on every man hired.

Four pleasant communities—two in Tennessee and two in Mississippi—near the mill offered ample housing or sites. No housing had to be built by the company.

Great attention has been given to personal working conditions. "Country club" locker facilities for all workers are a feature of this mill. ■

R. F. Cuyle General superintendent

H. C. Carter Plant engineer

J. C. Baumgartner Technical superintendent

G. O. Griffith Controller and asst. treasurer

Frank Jensen Paper mill supt.

G. L. Hollimon Pulp mill supt.

D. R. Pichon Jr. Industrial relations director

Leon G. Smith Purchasing and traffic manager

Francis Hank Asst. pulp mill supt., pulping

J. G. Lee Asst. pulp mill supt., power & recovery

John Morris Asst. paper mill supt.

A. B. Lindsey Instrument supervisor

H. O. Lovic Chief electrician

T. A. Terry Maintenance supt.

Harry D. Wilson Chief accountant

James Forrester Safety supervisor

A. K. Dexter Wood and land manager

N. W. Sentell Asst. wood and land manager

W. W. Vickery Forest management supt.

W. E. Gibbons Wood procurement supt.

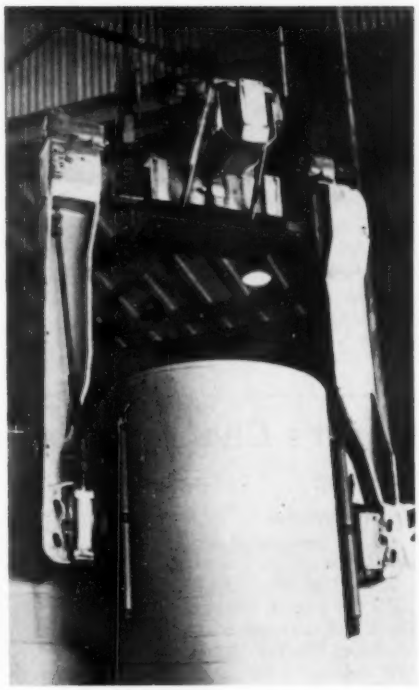
Problem: Reducing roll handling damage

Problem: Increase efficiency, decrease damage in roll handling.
Place: St. Regis Paper Co's. Jacksonville, Fla., mill.
Solution: By installing rollers on its roll grab, St. Regis has increased efficiency of roll handling 20% and reduced roll damage by about 30% in its roll storage warehouse.

Idea for the rollers came to Tom Beauchamp, order and production coordinator, who was concerned at the amount of roll damage from handling rolls. He discussed the idea of using rollers on the grab with Dave Roberts, plant engineer.

Two 4 in. pipes are welded onto each side of the roll grab foot plate. In operation, the operator drops the grab around a roll near the center of the roll and the free turning rollers quickly and easily adjust the grab foot to a centered position on the roll. The operator has no doubt that the roll may be safely moved.

Installed on one crane for three months, the difference was so great that the rollers were put on another crane. The biggest single advantage, says Inventor Beauchamp, is the ability to pick up rolls from storage without having to center them. The roller centers itself. This is of special advantage in blind spots. The operator can sense when the roll is grabbed. Another feature, cites Al Gibson, finishing and shipping supt., is the ease with which a horizontal roll may be picked up.



Mr. Gibson says the 30% reduced damage and 20% increased efficiency are conservative figures.

Problem: How to measure mill chemical losses

Problem: Monitoring mill sewers to measure chemical loss following pulp cooking process.
Place: Brunswick Pulp & Paper Co., Brunswick, Ga.
Solution: Impact meters to measure sewer flow, developed by W. J. Ervin, George Seymour and F. C. Cook of the Brunswick staff, aided by D. H. Strickland. The principle involves opposing the force arm of a probe suspended in the sewer with another arm connected to a force balance transmitter. The force necessary to counteract the impact of the water on the probe is measured and recorded. Each meter is calibrated by varying the flow rate and checking by the salt dilution method. A graph is then made of the force reading versus the flow.

"A problem common to our industry is that of sewer losses," said Mr. Ervin, "and when management needed to know our mill soda balance, we had to determine the flow in our sewers." The meters have been in operation for over a year, with three now at work—one in the caustic area sewer, one in the wash room sewer and one in the screen room sewer. The meter offers a minimum obstruction to the sewer and is easily cleaned. The fouling problem is no worse than with convention type meters and maintenance cost is low.

A technical paper by Mr. Ervin describing the meter recently won first prize from Southeastern TAPPI.

Fraser's personnel and safety director Kenneth Perkins tells how to . . .

Improve Machine Crew Training

Madawaska, Maine

A HOMEMADE TRAINING program for paper machine crews has recently been completed here at the seven paper machine mill of Fraser Paper Ltd. Results: Machine crews' skills and knowledge have been upgraded and the need for "importing" skilled papermakers to fill positions created through addition of a new paper machine has been eliminated.

Preliminary planning involved five phases: job analysis, employe evaluation, instructor training, lectures and on-the-job training. Each phase followed another. Before swinging into the program, three steps were taken:

- A budget was established.
- Representatives were selected from management and the unions for a steering or management committee. Both the unions and management gave their full support.
- A kick-off meeting was held with the machine crews at which the intent and purpose of the program was outlined and cooperation was sought.

Fraser's Check List for Machine Crew Training

Start-up

Machinetender

Check on presence of crew
See that steam is turned on dryers and that dryers are running properly
Check for tension of dryer felts
Check wet felts—top rolls evenly down
Wash and check Fourdrinier wire
Start vacuum pumps
Start screens
Open water showers
Check Mordens and jordans
Open all water valves and close drain valves
Start fan pump or pumps
Start chest stock pump and stock regulator
Start Mordens and jordans
Get head up
Start Centri-Cleaner pump
Let dandy roll down
See that sheet is put through presses, dryers
Stack and reel in conjunction with B.T.
Maintain proper discipline and working order among crew

Backtender

Check orders for finish and starch
Start starch press
Prepare calender for start-up
Open valves on journals
Start Vapo sprays
Start reel drum
Take paper over machine
Measure deckle or width of sheet
Check drying of sheet
Turn reel over when M.T. and B.T. are ready
See that samples are taken by testing
Check sheet for defects

Third hand

Clean calender rolls with kerosene
Place empty reel in reel drum
Help crew take paper over machine
Check orders for
(1) Roll size
(2) Diameter
(3) Type of splices
(4) Flags
(5) Markings on end of rolls
(6) Waterproof wrappers
(7) Roll tickets
(8) Number of sets
Take sample and moisture strips for testing department and M.T.
Aid back tender in inspecting and measuring width of sheet
Check with B.T. to see which trim is to be started with
Inform fourth hand as to how rolls are to be cut on winder
With aid of fourth hand set slitters on winder
Cut stencils to mark rolls
Make out roll tickets if used
Aid in tearing of paper made in start-up

Fourth hand

Aid third hand in installing empty reel in drum
Assist machinetender and backtender in preparing felts and wire for start-up
Keep broke clean of press doctor as sheet is threaded through
Cut end of sheet for B.T. at size press, calender stack and again at reel
Aid third hand in taking samples of reel
Check orders for length and size of cores
Check at winder to see if cores have been delivered
Load cores on winder
Prepare slitters for operation
Assist third hand in setting slitters on the winder
Assist third hand in tearing off culled paper
Keep broke down hole

Fifth hand

Assist machine tender in getting wire ready
Close drains on head box and screens
Open showers on head box and screens
Assist machine tender in cleaning dandy roll
Put broke cart under broke conveyor at press
Operate squirt on wire
Keep floor clean or any loose paper
Keep broke down holes at calender stack and reel
Aid and assist crew on winder

Sixth hand

Brush rolls

In process

Machinetender

Level sheet on wire
Maintain proper weight standards
Maintain and if necessary improve formation
Check with BMT or inspector on tests conducted on start-up
Weigh samples on each set, check each sample closely for defects
Maintain proper tension on draws
Keep constant check on felts and wire guides
Keep seam straight on felt for durability and performance
Make proper adjustments when changing over on color, weight, furnish, or speed in order to maintain good sheet formation
Inform back tender of any changes in speed or furnish which may affect the drying of the paper
Maintain discipline and working order amongst machine crew
Set jordans and refiners as desired

Backtender

Build the reel
Maintain right amount of moisture on sheet
Keep reel hard and maintain perfect finish across the sheet
Watch for defects in sheet

First phase of training program was a zonal analysis of the duties of machine crews, machinetender through fifth hand, prepared with respect to start-up, full operation and shutdown. This analysis was made by relieving, at various intervals, five boss machinetenders for one week. Then five zonal analyses were made.

In addition, an analysis of the various sections of the paper machine was made by the engineering department. The result was an accurate picture of the responsibilities of every man—mechanical and technical—as an individual and as a team member.

No. 2 was employe evaluation To better guide the on-the-job trainers, each papermaker was placed in one training category. Categories were arrived at through an evaluation by a five-man committee of superintendents and boss machinetenders. Through evaluation, the individual training needs could be concentrated upon rather than generalized. One composite was made from these five separate evaluations and each papermaker was placed in one of four categories. The assignments were flexible.

The boss machinetenders, who had made the job analyses, were selected as on-the-job trainers and were coached in industrial lecturing by the Maine State Department.

The lectures were voluntary; Fraser didn't pay for attendance. Personnel other than machine crews were invited and an exceptionally large number attended.

To combine theory with practice an on-the-job training program was conducted concurrently with lectures. Machine personnel were, according to their evaluated abilities, relieved of normal duties for two weeks and assigned to boss machinetenders.

Each man was given concentrated training, which exposed him to most of the requirements of the next job up. Time was spent in actually working with job incumbents. On-the-job training was not confined exclusively to the paper machines. Other areas, such as pumps, stock and water systems, steam and power, technical testing, inspecting were covered. ■

Take samples for machine tender as requested
Maintain constant check on every set with sample room concerning bulk, finish, etc.
Inspect sheet on reel before it is wound or cut into rolls
Maintain production report
See that bearings on calender stack are cool at all times
Maintain proper cuts as necessary
Check with third hand concerning winding of perfect rolls
Check rolls after they come off winder
After every set turns over unwind the sheet to check for defects
Keep constant check on dryers, starch press and calender stack

Third hand

Take necessary samples off each reel
Aid B.T. in inspecting sheet before winding
Start winder
Check roll width and adjust slitters if necessary
Set winder at desired speed and wind paper into perfect rolls
Make all splices when necessary—record them
Inspect roll for defects while winder is running
Operate overhead crane
Take set off winder
Sound rolls for hardness after they come off winder
Mark all rolls
Send defective rolls to rewinder
Inspect rolls for hair cuts, lint or fuzz (etc.)
Aid back tender around calender and reel on all finish changes

Fourth hand

On all breaks remove broke from second press doctor
On all breaks cut end off sheet for back tender at size press, calender stack, and reel
Check orders for proper size and length of cores
Check with third hand for proper alignment of cores on winder shaft
Load cores on shaft
Assist third hand in operating winder
Observe at all times operation of winder from front end
Watch for defects in rolls, improper slitter cutting
Aid crew in tearing up all culled paper
Assist crew in keeping winder and floor around winder clean
Assist third hand in making splices
Separate rolls as they come off winder
Check for broke in Yankee dryer and exhaust fan ducts

Fifth hand

On breaks, when told, squirt up around screens and head box
Keep all broke down holes on all breaks
Iron all splices at winder
Cut waterproof wrapper in advance when it is to be used
Aid in operating winder
Assist fourth hand in removing shafts from rolls on winder
Operate chain on roll hoist
Help separate rolls as they are taken off winder
Weigh all rolls, mark weight and number of splices on slip of paper and deliver to back tender
Truck all good rolls to finishing room
Truck all defective rolls to rewinder
Assist crew in tearing up all culled paper
Keep floor around dry end clean

Shut-down

Machinetender

Stop stock pump
Stop shake on wire
Pull off jordans and refiners and, after stock has run out, stop them
Stop Centri-Cleaner pump
Raise dandy roll off wire
Open head box gate
Stop fan pump
When all stock is drained out of head box, stop the wire
Shut water showers off
Check for any defects in the wire
Clean the Fourdrinier
Stop all suction pumps
Stop Bird screen
Check to see that felts are washed
See that top press roll is raised
Check felts after wash-up
Supervise wash-up

Backtender

See that steam is shut off dryers
Stop calender stack
Take pressure off top press rolls
Stop suction pumps for boxes in felts
Raise doctor on top roll on second press
Stop dryers
Stop size press
Wash felts
Clean frames of machine and suction boxes
Stop presses
See that crew winds up all paper on floor and enters weight in production book

Third hand

Stop winder
With rest of crew, wash felts and aid in installing any new felts
Wind off all left-over paper
Enter all paper on floor weight into production book

Fourth hand

Remove all broke from second press doctor
Assist crew on wash-up or installing new felts
Aid in winding off any left-over paper
Clean winder and floor around winder before going home

Fifth hand

Open drain valves in head box and Bird screens
Clean screens in head box
Assist machinetender in cleaning screen
Assist backtender in wash-up
Aid in winding off left-over paper
Check weights and splices on these rolls
Clean floor around winder

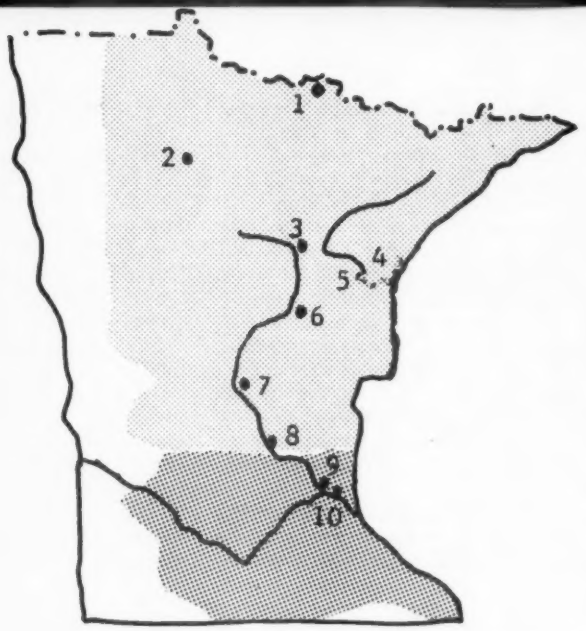
Harry T. Kendall, Jr.

of Northwest Paper Co.

sees bright future for

Minnesota pulp, paper industry

which now . . . . .



MINNESOTA: Upper portion contains forests of many species of pine, including jack and Norway pine, spruce and other softwoods, plus aspen and other hardwoods. Lower portion is predominantly hardwood. Pulp and paper mills are situated near (1) International Falls, (2) Bemidji, (3) Grand Rapids, (4) Duluth, (5) Cloquet, (6) Brainerd, (7) Little Falls, (8) Sartell, (9) Minneapolis and (10) St. Paul.

Leads Neighbors in Growth Rate

(Based on a talk given by Harry T. Kendall, Jr., president of The Northwest Paper Co., Cloquet, Minn., to Duluth meeting of National Office Management Assn.)

MINNESOTA'S FOREST PRODUCTS reached their peak at the turn of the century when lumber was being manufactured by dozens of busy sawmills, but there is a substantial wood harvest these days and the value of forest products harvested in Minnesota during 1959 totaled $219 million, making this industry the third largest in the state.

Minnesota has 18 million acres of commercial forest land, best suited for growing of trees. Seventy-seven percent, or 14 million acres, is in the 15 northeastern counties. Most of the total land area in northeastern Minnesota is classified as commercial forest land.

The latest figures indicate that we are growing substantially more wood than is being cut, possibly to the extent of a million cords per year, and that we are cutting only about 60% of the estimated total annual growth.

This is misleading, however. The more valuable species, spruce and pine, are being cut at approximately the rate of the annual growth. The less valuable species have a surplus of growth over cut, aspen estimated at 600,000 cords annually and other hardwoods at 300,000 cords. Therefore, for the foreseeable future, expansion of forest industries should logically be based on aspen and other hardwoods. Minnesota's pulp and paper industry is doing everything it can to increase use of aspen and is spending substantial sums on research to develop additional aspen pulps usable in its products.

Aspen's principal shortcoming is that its fiber length is only about one-third as long as spruce or pine. While aspen fibers add certain qualities to good paper, there must still be a substantial amount of the longer fibers, spruce, balsam and pine, to give the strength and other characteristics required. Progress is being made in developing the strength of hardwood fibers. Minnesota's pulp and paper industry is to a great extent dependent on the increased use of relatively low cost aspen in its competitive struggle with the South and West.

Minnesota's commercial forest is owned 56% by federal, state and county governmental bodies, while in northeastern Minnesota the same government units own 67% of the total commercial forest. In our area, the major forested area, only one-third of the acreage is in private ownership and on the tax rolls. The public ownership is split roughly in equal shares between county, state and federal government.

Forest industry ownership comprises only 3% of the 18 million acres of commercial forest land, an extraordinary situation when compared to forest industry land ownership in other major wood-producing states, in Wisconsin, 6%; Michigan, 8%; New York, 10%; Maine, 40%; Louisiana, 27%; Arkansas, 21%; Washington, 46%.

This situation in Minnesota is due to several causes. In the first place, some forest industries, based primarily on the use of aspen and other hardwoods, prefer not to own timberlands and to purchase their requirements on the open market. Secondly, industries that do own timber do not feel it is possible or practical to own enough land to supply their requirements, and have indicated that they would feel reasonably secure if they owned about 50% more land than they do now. Thus, industry's share of the total commercial forest land would become about 4½%, certainly a low figure by comparison with many other

states. Thirdly, the governmental bodies, with some exceptions, have shown no general inclination to sell publicly owned land, preferring to retain ownership and sell timber for use by forest industries. This is a highly controversial policy.

Principal elements of cost of a sheet of paper are labor, pulpwood, chemicals, steam and electric power, water and the various charges such as depreciation and taxes. In none of these major elements does our section of the country offer a significant advantage costwise when compared with other sections. Our labor rates are well above average for the U. S., there is no relatively low cost chemical or fuel in the area, and our taxes are high. Wood costs, in which we might be expected to have an advantage, are definitely on the high side, particularly by comparison with the South and West Coast.

There are two principal reasons for these higher wood costs—first, the forest growth rate in the South and Far West are roughly double what they are in Minnesota. Secondly, throughout the West Coast and in much of the South, large quantities of pulp are now made from sawmill waste which was formerly burned. Pulp mills built near sawmills are now getting their entire wood supply, at very low cost, from this waste wood.

The major paper consuming markets in the printing and publishing field are in New York, Chicago and Los Angeles. Many other major cities have sizable printing industries and the Minneapolis-St. Paul area has a large printing industry. We are well located with regard to the Chicago market, although not as close as Wisconsin and Michigan paper manufacturers. On balance we are reasonably well located with regard to some of our markets, but have no advantage of consequence and probably have a higher freight rate average than our competition.

Because of the long lead time necessary in designing and installing new productive equipment—between two and four years—this industry has gone through many periods of excess capacity, and it currently is in the midst of one of those times when capacity to produce has outstripped demand, also growing at a fair rate itself.

Prices of market woodpulp, for instance, have recently been reduced by up to 10% and are at levels of 10 to 12 years ago. We all know how much wages have increased in that period, so we know that profit margins are being squeezed. Generally the same situation exists in many parts of the industry and there appears to be no relief for some time—some people guess several years.

Most assuredly, from the market angle in most segments of the industry, now is not the time to construct new pulp and paper manufacturing equipment, unless the owners are content to wait years to earn a reasonable return. On the other hand, now is the time for existing industries to invest all available funds in cost-cutting equipment and methods, and that is what is taking place.

Minnesota paper and board production has been greater percentagewise than in either Michigan or Wisconsin or the country as a whole on most bases we have calculated. Minnesota's increase, for instance, from 1929 to 1956 was 166%, while Wisconsin increased 133% and Michigan 56%. The United States as a whole slightly exceeded Minnesota and increased 182%. However, Minnesota's 81% increase of 1956 production over 1941 was higher than the other Lake States and also for the country as a whole, and the same situation exists when comparing 1958 with 1938, both recession years.

Currently Michigan's paper and board production is double that of Minnesota; Wisconsin's production is 2½ times Minnesota's, a situation that arose years ago in attempting to locate paper mills as close to consuming markets as was economically sound, so Minnesota has a long way to go to catch up. The important thing however, is that our growth rate exceeds our neighboring states and, on most bases, of the country as a whole, in spite of huge capacity increases in the South and West.

Why does Minnesota's industry seem to be growing as fast as the average of the entire country, in spite of the tremendous expansion in the South and on the West Coast?

There are several reasons. Because of the lack of significant cost advantage, we have had no major influx of capital for the construction of new mills in many years, but we have had large expansions of existing mills to take advantage of the unit cost reductions possible by increasing output.

A second reason has been that characteristic of the fibers of our Northern woods which has permitted the manufacture of a higher grade product than has been in the past technologically possible from Southern or Western trees. This advantage has been significantly reduced in the last few years by advances in technology, but it still remains an advantage.

Another reason is that much of our competition in the printing and fine grades still is in New England, New York and Pennsylvania. The mills in those states have in some cases been old and inefficient and have been shut down as sources of low cost wood disappeared, so that our area's gain has been at the expense of that section.

There have been technological advances which have permitted far greater use in our industry of the lower cost hardwoods than would have been thought possible some years ago. This has helped hold rising costs in line and contributed to our growth.

There are undoubtedly other reasons, but I think a significant one can be attributed to the determination, intelligence and hard work of those individuals connected with the forest industries, that they are going to pull themselves up by the bootstraps, so to speak, and make a success out of an industry based on our growing forest resources, in spite of many obstacles.

There is every reason to believe that pulp and paper and other forest industries will continue to grow in Minnesota. As public understanding of land ownership patterns, taxes and other factors, increases, the prospects for equitable solutions to these and other problems increase. Continued research for new products based on hardwoods will point the way for new industries. I am sure that most other existing forest industry companies have, as our company most certainly has, a lot of plans for development and expansion. Minnesota's third largest industry is going to continue to be a growth industry. ■

Key facts about Minnesota's forest-products industry

. . . It's the third largest industry in the state . . .

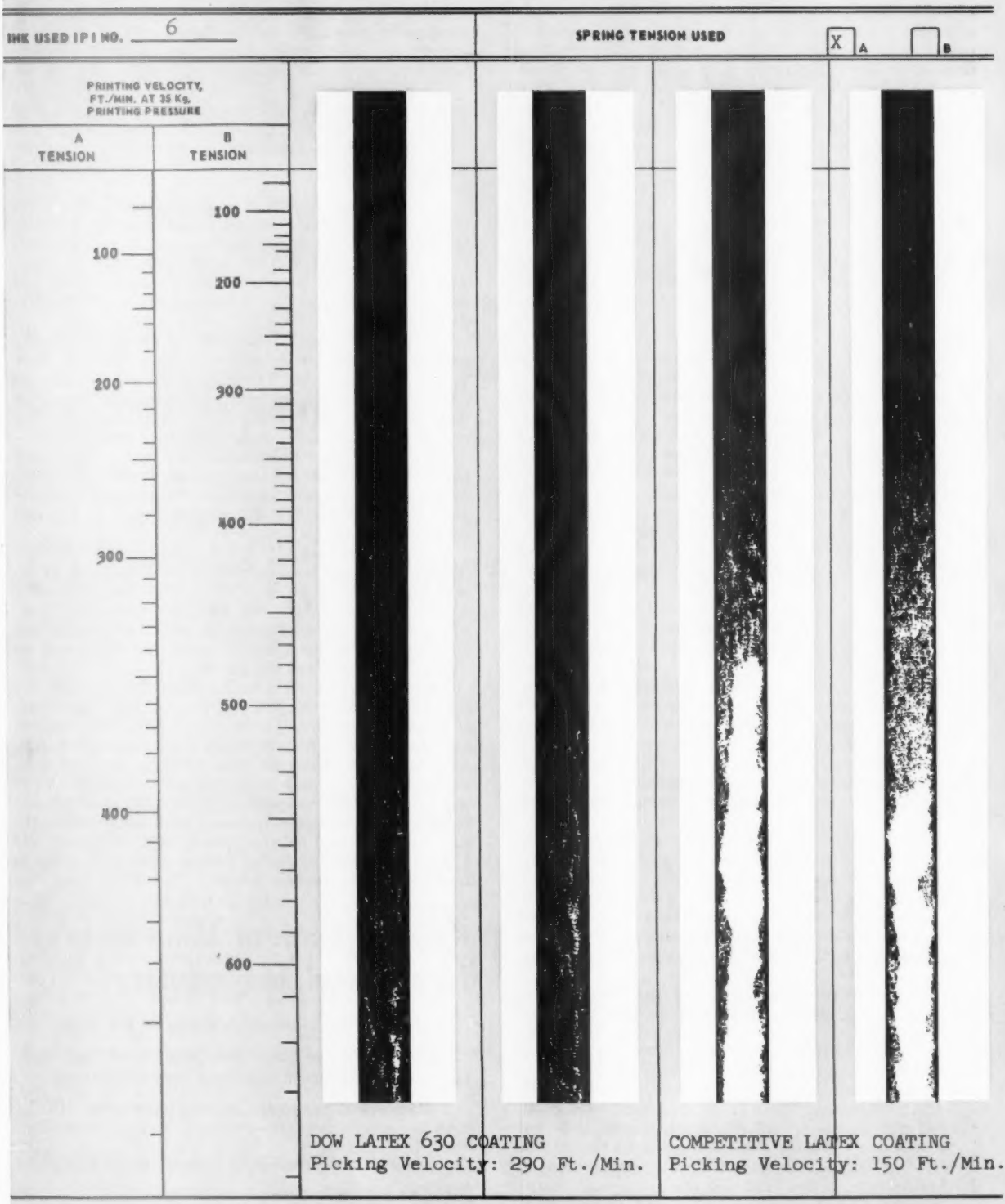
. . . Growth rate of paper and paperboard production exceeds that of Michigan and Wisconsin . . .

. . . Pulpwood consumption last year was 1,000,000 cords . . .

. . . Commercial forest land comprises 18,000,000 acres . . .

. . . Three percent of this acreage is industry-owned, fifty-six percent government-owned . . .

VELOCITY CHART FOR IGT PRINTABILITY TESTER



PROVEN commercially... greater pick resistance with DOW LATEX 630

The velocity chart, left, for IGT Printability Tester provides proof of the greatly superior pick resistance of new Dow Latex 630. Here, laboratory test data are reported on the relative printability of commercially coated papers.

The two strips on the right coated with a competitive latex represent the performance of the "standard" grade. The two strips on the left represent the performance of that grade with Dow Latex 630 replacing the competitive latex in the coating.

In this test, Number 6 ink was used, and "A" spring tension. The test strips show that average pick velocity of strips with the competitive latex coating was 150 ft. per minute. But strips coated with Dow Latex 630 showed an average pick velocity of 290 ft. per minute . . . also note the reduction in bodystock splitting and the "blacker" black of the ink with the Dow Latex 630 coating.

In addition to greater pick resistance, Dow Latex 630 offers exceptional starch compatibility, excellent mechanical stability, and other outstanding advantages. Together, they spell superior printability . . . paper that permits clear, sharp, true-to-life reproduction with a minimum of problems for the pressman. Type reproduction stands out sharp and clear, too, because coatings made with Dow Latex 630 produce a more uniformly smooth printing surface.

Find out how Dow Latex 630 can help you to produce better paper . . . and boost your sales. For detailed information, write today to THE DOW CHEMICAL COMPANY, Midland, Michigan, Coatings Sales Department 1931JJ6-26.

Write for a free copy of this informative booklet on new Dow Latex 630. It contains valuable data and information on how you can improve the performance of your coated papers.

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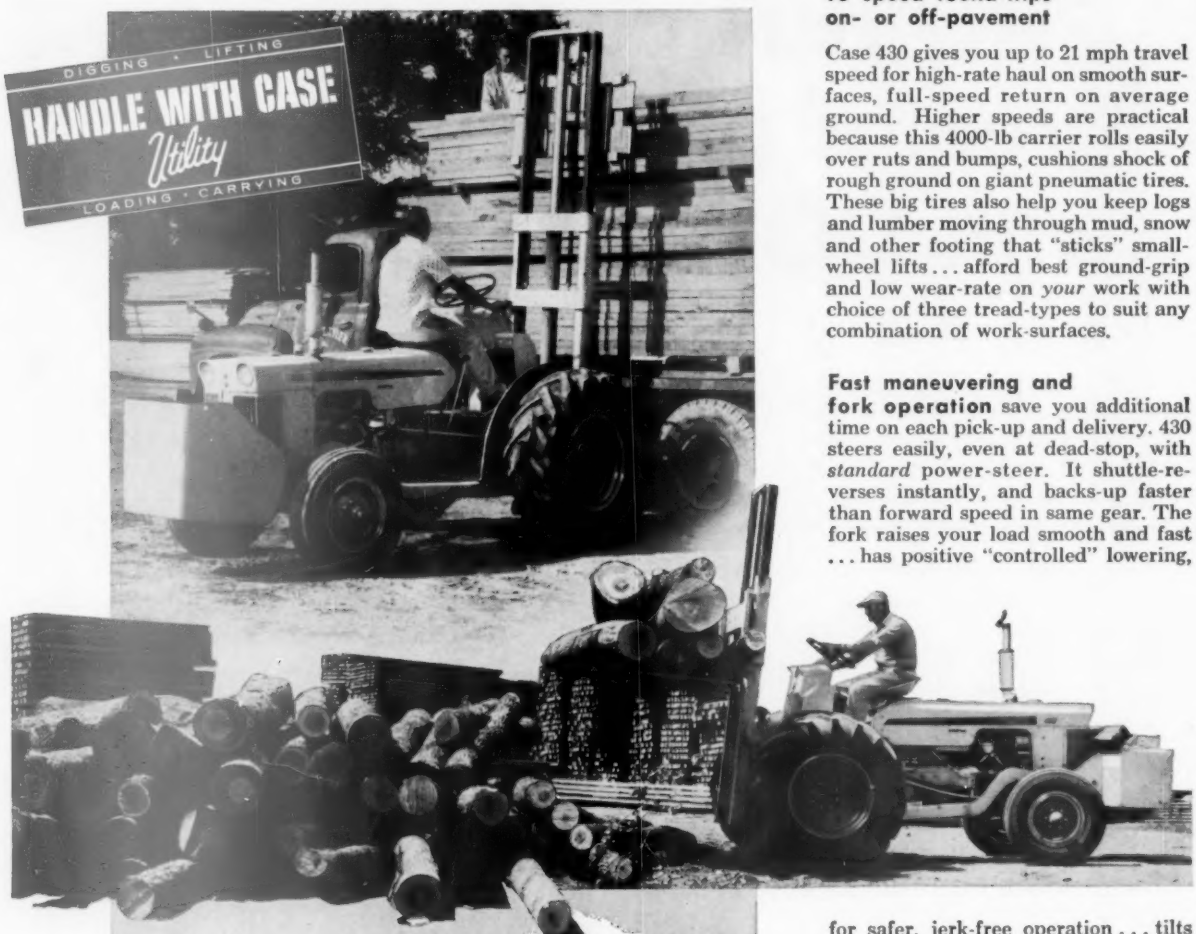
Cut round-trip time



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This Case 530 *Utility* Log Fork interchanges with pallet fork for lumber; with buckets for dirtmoving, sawdust, snow. Tractor has extra power and ruggedness for light skidding, tree-farm work, and other jobs in woods, on roads, at landing or mill.

Reduce your cost of handling lumber, logs and pulpwood . . . cut average load-haul-and-return time with a high-speed Case 430 *Utility* Fork Lift. You'll step-up production or reduce number, size (and investment) of machines needed . . . or free your fork lift operator for other part-time work.

To speed round-trips on- or off-pavement

Case 430 gives you up to 21 mph travel speed for high-rate haul on smooth surfaces, full-speed return on average ground. Higher speeds are practical because this 4000-lb carrier rolls easily over ruts and bumps, cushions shock of rough ground on giant pneumatic tires. These big tires also help you keep logs and lumber moving through mud, snow and other footing that "sticks" small-wheel lifts . . . afford best ground-grip and low wear-rate on *your* work with choice of three tread-types to suit any combination of work-surfaces.

Fast maneuvering and fork operation save you additional time on each pick-up and delivery. 430 steers easily, even at dead-stop, with *standard* power-steer. It shuttle-reverses instantly, and backs-up faster than forward speed in same gear. The fork raises your load smooth and fast . . . has positive "controlled" lowering, for safer, jerk-free operation . . . tilts 10° for easy pick-up, holding load, and log-handling. (For *continuous* log-work you'll want optional 50° hydraulic tilt-fork.) Model 430 is offered with 10½', 14¼', or 21½' mast . . . overhead guard standard on two larger sizes. Choice of *high-torque Case-built gasoline or diesel engine.*

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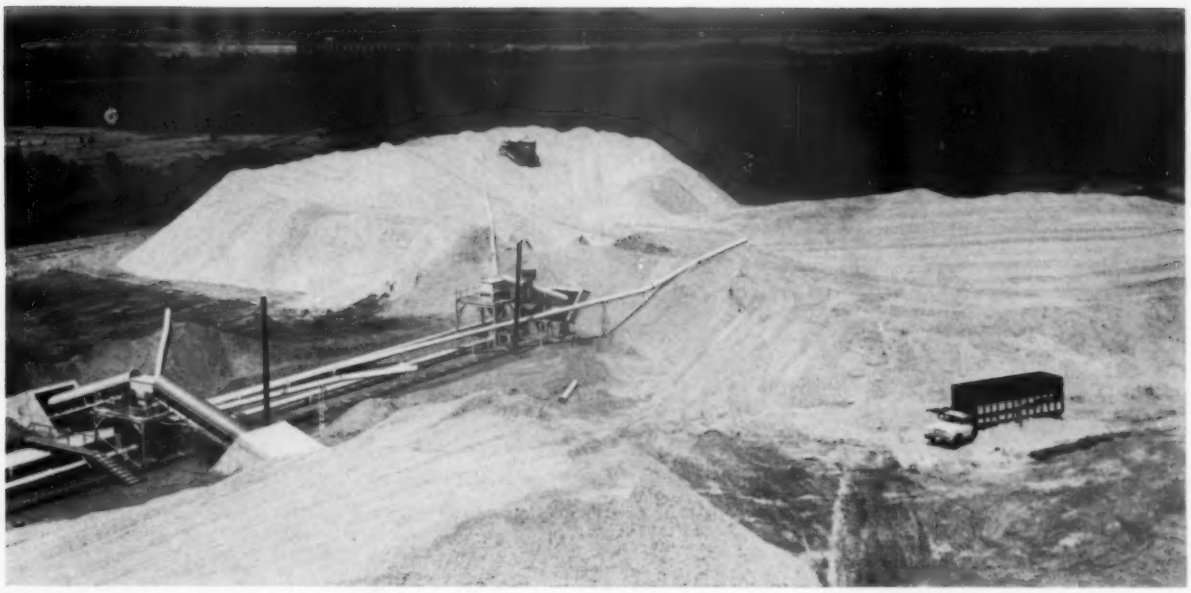


CHIPS ARE STORED OUTSIDE at new mill in three areas such as this one. Total capacity: 18,000 cords.

Tennessee River Uses 800 Cords/Day

Wood is obtained in three states within a 300-mile radius

MORE THAN 800 CORDS a day are consumed by Tennessee River Pulp & Paper Co. The wood and land division is staffed with 22 technical foresters and is divided into two departments: wood procurement and land management.

Wood procurement is responsible for purchasing and transporting an adequate supply of good quality wood to the mill at all times and at a reasonable cost. In addition to a superintendent in the central office, there are three area foresters, one each for Mississippi, Alabama and Tennessee and eight conservation foresters.

The conservation foresters are located in the procurement area which extends 150 to 200 miles from the mill. This department also has the task of educating, working with, and encouraging small forest landowners to use profitable methods in forestry practice.

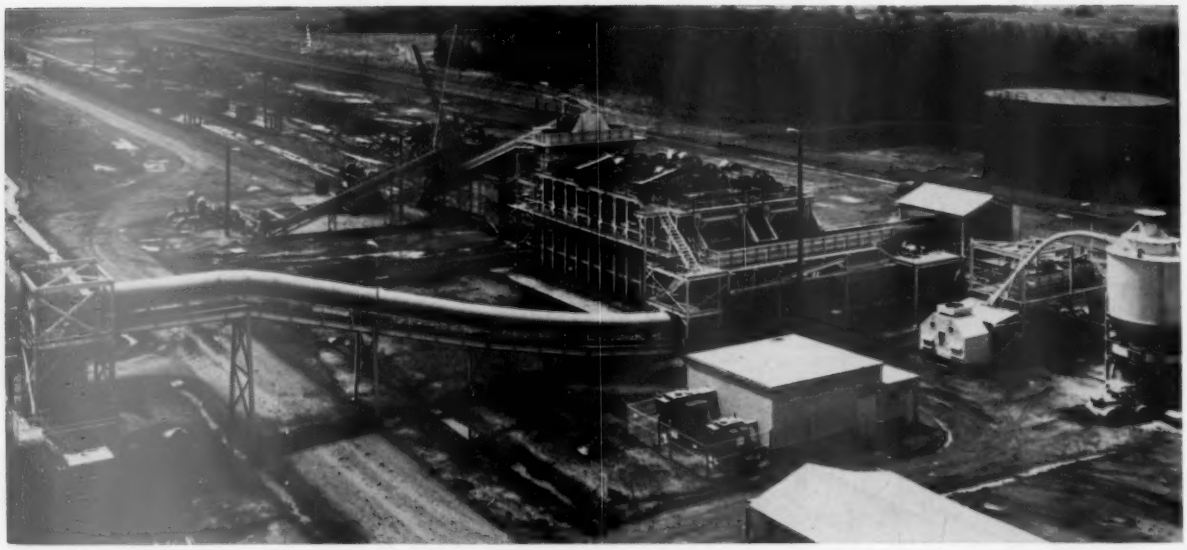
Wood within 75 miles of the mill is delivered by truck. Wood from more distant points is carried by six railroads.

Primary functions of the land department are administering and managing 159,347 acres of company-owned land. In addition to a superintendent in the central office, seven technical foresters head up six administrative districts into which property is divided. Since 1953, the company has planted more than 33 million pine seedlings on poorly stocked forest lands. It has also removed cull hardwoods, where they were competing with pine on 65,000 acres of unproductive lands.

It has also waged an active research program with the Tennessee Valley Authority and has established a seed orchard to produce genetically superior forest trees. Company-owned lands are not expected to produce more than 50% of the mill requirements.

Wood is received in lengths of 5 ft. 3 in. and diameters up to 22 in. by rail and truck along either side of a metal lined reinforced concrete flume 650 ft. long. Truck wood is unloaded by two cranes and a rail mounted wood rake to the flume for railroad unloading or by crane to temporary ground storage. Water is circulated through the flume by two 100 hp, 12,000 gpm vertical pumps that draw the water from twin grit removal pits. These pits have drag type continuous grit removal conveyors and rotary trash screens.

Wood is conveyed from the flume to twin barking drums by an inclined chain conveyor 140 ft. long which elevates approximately 40 ft. to the drum inlet chutes. The three-sectioned drums are 12 ft. diam. and 67½ ft. long. The first two sections are driven by a 150 hp, 900 rpm motor, and the final by a 75 hp, 900 rpm motor. The motors are connected to the drums through fluid couplings, belt systems and reduction gears to



OUTSIDE CONSTRUCTION is one innovation of new mill. Note open construction of chipping and screening area.

give a drum speed of 6 rpm. Drum surfaces are composed of 36 "M" bars welded to steel rings. Discharge gates are remotely controlled by pneumatic positioners that automatically maintain the selected position.

Drums discharge into an inclined conveyor of four parallel chains that have pick up lugs at 6 ft. intervals. This conveyor passes at 90° to the major axis of the drums and passes the wood to spiked speed rolls to straighten the logs for transfer to the sorting belt. The speed rolls cause the sticks of wood to strike a heavy hanging target plate and drop a short transfer deck of seven parallel chains move the logs in a 90° change in direction to the sorting belt, a flat rubber belt 5½ ft. wide, 25½ ft. long. The belt speed is 90 fpm. Wood discharges from the sorting belt to the chipper feed belt with a 90° direction change. The chipper feed belt is 2 ft. wide, 23½ ft. long and runs at 350 fpm.

The chipper is a 12-knife, 104 in. dia. unit with a 23 inch V spout direct connected to a 1250 hp, 360 rpm motor. The back of the disc has fan blades that blow the chips through a top discharge through a blow line into an elevated surge bin.

Bark from the barking drums plus trash from the flume is conveyed by belts from the bark chutes under the drums to a bark hog, protected by an electromagnet. Bark is conveyed from the hog by belt and then flight conveyors to a bark storage bin for use as fuel in the combination boiler.

Chips are received from the chipper by a surge bin, 16 ft. dia. by 25 ft. high, with a 14½ ft. dia. rotating table discharger which delivers the chips into a rotary pocket feeder. This pocket feeder delivers the chips to a pneumatic conveyor. This system blows the chips by a 450 hp blower to three outside storage areas or to two chip storage bins.

Outside storage areas are maintained and chips are reclaimed by a bulldozer. Three reclaiming pits with conveyors and rotary pocket feeders deliver the chips to a second pneumatic conveyor with a 450 hp blower that will deliver the chips to two storage bins.

The wood preparation and chip handling departments handle, separately, pine and two types of hardwood. The outside chip storage areas have a capacity of 18,000 cords of chips. One chip storage bin is for pine and one for hardwood. Both bins are 40 ft. dia. and have 17 ft. dia. rotary turntable dischargers. The pine bin has a capacity of 60,000 cu. ft., the hardwood, 28,500 cu. ft.

Chips discharge from storage bins to a 3½ ft. wide inclined belt which runs in troughing idlers over a Weightometer and discharges to a tripper conveyor that delivers the chips to one of four digesters. Capacity of this conveying system is 32,000 cu. ft. per hour. Turntable dischargers automatically stop when a pre-selected weight of chips has passed over the weightometer or when radioactive type of density measuring gauges, on the digesters, indicate that the digester is filled. Total chip weight is integrated and the flow is recorded rate. Digesters have capping valves rather than conventional heads and the tripper conveyor can be positioned over any digester by remote control. ■

Land use, wilderness conference set

WASHINGTON, D.C.—A forest land use conference, national in scope, to be sponsored by American Forest Products Industries, is planned for the Shoreham Hotel in Washington, Sept. 21-22. Purpose is to consider the growing role of forest lands of the United States in serving the economic, social and spiritual needs of the American people. Recommendations on the conference program were made by a special committee with John L. Tower, vice president, International Paper Co., as chairman. The seventh biennial Wilderness Conference, sponsored by the Sierra Club, scheduled in San Francisco on April 7-8, will feature Secretary of the Interior Steward L. Udall and Supreme Court Justice William O. Douglas. Conference theme: "The American Heritage of Wilderness."

MORE LOAD on LESS ROAD... that's John Deere 1010 skidding!

Cramped skid trails look like Main Street to the John Deere "1010." Packing 40 engine horsepower into little more than five feet of width, this 4-ton, 4-cylinder logging crawler has the easy handling and the punch to skid profit-making turns out of any kind of logging country.

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Check the yellow pages for the name of your nearest John Deere dealer. Ask for a demonstration of new "1010" earning power, plus facts on the John Deere Credit Plan.

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TRACTORS
BULLDOZERS
AND
LOGGING
EQUIPMENT

STRICTLY PERSONAL . . .

starts on p. 27 . . . folding carton development, Riegel Paper Corp. He was previously with Continental Can Co. for 10 years. He will headquarter at Milford, N. J. . . . **Keith F. Kennedy** has been elected secretary, Riegel. He was formerly assistant secretary . . . **Charles S. Maxwell,** chemical consultant, has been named chairman of the wet strength and interfiber bonding committee of TAPPI.

Peter R. Fritzsching has been named paper mill representative for the Middle Atlantic area for Penick & Ford, Ltd. He was previously with Air Reduction Chemical Co. as a research chemist.

Henry L. Hamrick joins Clupak, Inc. as field engineer. He is a mechanical engineer and had been project engineer with West Virginia Pulp and Paper Co.

Everett E. Hanke is now district sales manager, New England, Clinton Corn Processing Co. and will headquarter in Somerville, Mass. . . . Six men received b.s. degrees in paper engineering at the 63rd commencement exercises of Lowell Technological Institute. Paper industry graduates include **Bernard T. Coyle Jr.,** who will go to Riegel Paper Corp.; **David G. Lachapelle,** St. Regis Paper Co., **Raymond T. Mansur, William J. Swan, Ernest A. Tessier,** U.S. Navy OCS, and **Norman T. Veillette,** Nashua Corp.

Robert C. Farley joins Formex Co. as sales engineer in New England. He was previously plant purchasing agent with Scott Paper Co., Hoboken, N.J., and with Ames American Co.

H. Bach Nielsen is now assistant to the general manager, Nichols Engineering & Research Corp. He will have overall supervision of sales.

E. L. Holloway is now product manager, cartons, for the forest products operations of the packaging division, Olin Mathieson Chemical Corp.

Four Oxford promotions: **Earl D. Thomas** succeeds **George E. Prentiss** as general supt., paper mfg. Mr. Prentiss was transferred to the Lawrence division. **Cyril E. Johnson** moves up as supervisor, machine coated division and supercalendering . . . **Alton V. Stiles** was promoted to asst. supervisor, machine coated division and supercalendering . . . **Vincent A. Morrison** becomes supervisor of the Maine Coated dept.

More Oxford changes: **Ralph E. Woodsum,** purchasing agent, retires after 40 years with the company. **Dwight A. Rumery,** manager, engineering procurement, transfers to mill purchasing at Rumford, where he will be purchasing agent, responsible for both mill and engineering procurement. **Richard M. Waldenmyer** transferred from engineering procurement, Rumford, and was made asst. purchasing agent, Oxford Miami division. . . .

Henry Moser has been promoted to vice pres., engineering, Samuel M. Langston Co. He has been chief engineer since 1955, came to Langston from Masson Scott Co. Ltd.

E. Nobless Lowe, general counsel and secretary, West Virginia Pulp and Paper Co., has been appointed to the national panel of arbitrators for the American Arbitration Assn. . . . **Joseph P. Vinck** has been promoted from division administrator to general manager of the Walloomsac division, Columbia Box Board Mills, Inc. . . . **Wendell Croyle** moves up from tour boss to supt. of Walloomsac div.

Charles P. Bauer, patent counsel, Union Bag-Camp Paper Corp. was elected vice president, The United States Trademark Assn. **Robert Hutchinson** succeeds the late **C. David Reed** as plant supt., C. A. Reed Co. . . .

Richard C. Winkler is now general mgr., Baltimore plant, Container Corp. of America . . . **J. H. Londergan,** former executive secretary of the National Paper Trade Assn., died May 31. He joined the association in 1934 and served as director of the statistical research division until 1951, when he became executive secretary until his retirement in 1959.

Midwest

Ira N. Stone is now general manager of the Acme Div., of Stone Container Corp., Chicago. **Lee Bernstein,** former Acme division mgr., assumes other corporate duties.

Alvin Blue is new general manager of The Stone Container Corp's. North Chicago corrugated container plant. He was previously sales mgr. **James Meehan** steps up as sales mgr. at North Chicago, moving from the asst. sales mgr. position. **Walter H. McCallum** has joined Stone Container Corp., Chicago, as sales manager of national accounts, paperbox division.

Nolan

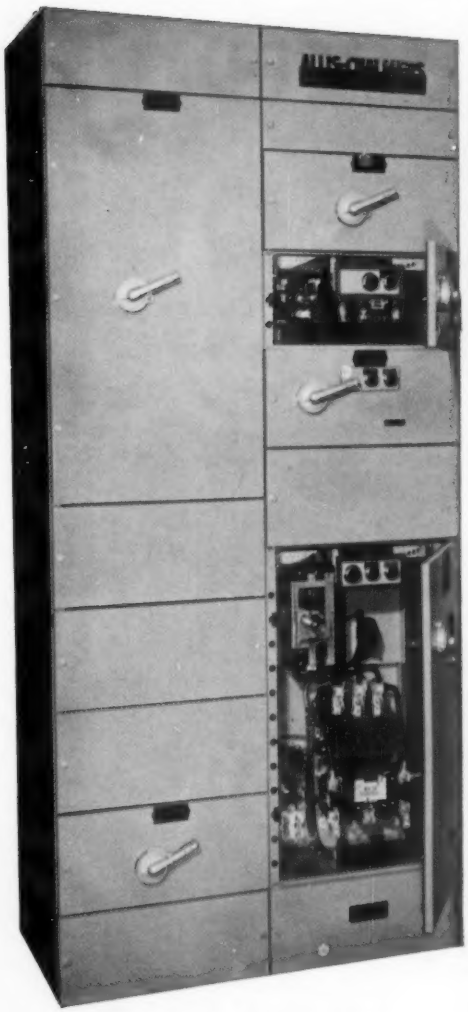
Nalley

Kenneth J. Nolan and **E. P. "Pat" Nalley** have been named to two new posts of Eastern and Western sales managers by the Harris-Seybold Division of Harris-Intertype Corp. They will operate out of Cleveland offices.

New officers elected for the coming year by the Michigan division of PIMA and the Kalamazoo Valley section of TAPPI are: chairman, **Preston D. Carter,** KVP Sutherland Paper Co; 1st vice chairman, **Hugh E. Warren,** Rex Paper Co; 2nd vice chairman, **Robert A. Larson,** Allied Paper Corp; 3rd vice chairman, **Donald Martin,** Hamilton Div., Weyerhaeuser Co. Dr. **John R. Fanselow,** Western Michigan University, was re-elected secretary-treasurer.

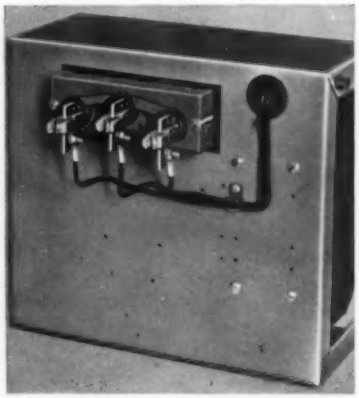
Named to the executive committee are **Martin Craig,** Dow Chemical Co; **Claude Fletcher,** Corn Products Refining Co; **Thomas Flanagan,** KVP Sutherland Paper Co; **Robert Levy,** Allied Paper Corp; **William Lunsford,** Consolidated Paper Co; **Charles Jakeway,** Packaging

ALLIS-CHALMERS

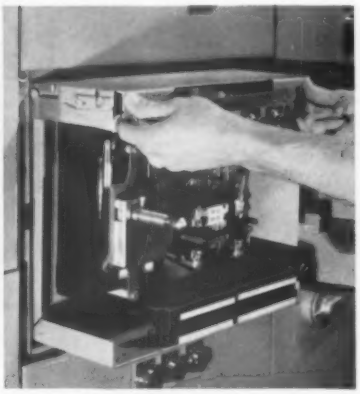


1. Centralized control saves space, cuts installation and engineering costs.

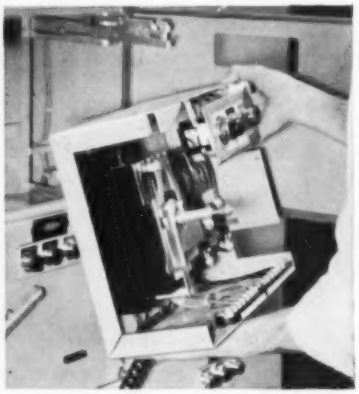
2. Exclusive plug-in terminal blocks permit removal of units without tools. Fully accessible location at front of units simplifies your wiring.



3. Extra heavy plug-in stabs and positive alignment provided by TRACK-GUIDE drawout mechanism assure trouble-free electrical connection.



4. With TRACK-GUIDE mechanism, units can be easily and safely de-energized and locked out, or withdrawn from enclosure for inspection and maintenance.



5. Units can be tilted up for inspection of stabs without removing from TRACK-GUIDE mechanism, or fully removed for bench maintenance or interchange.

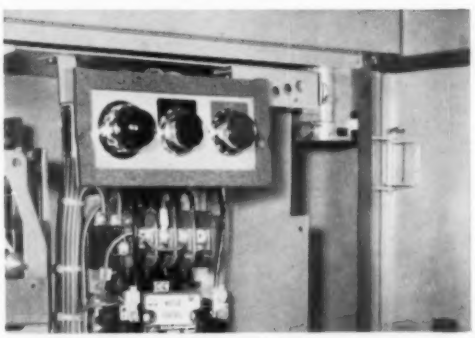
...six reasons why Allis-Chalmers new motor control center design is

the center of satisfaction

Satisfaction? It comes with every one of the new (yet fully proven) low-voltage control centers from A-C. Their clean lean design saves valuable space. Exclusive plug-in terminal blocks cut installation time . . . speed inspection and removal. *Track-Guide* drawout mechanism lowers maintenance costs. Control units can be drawn out, tilted up, or completely removed without tools.

Safety features of these new control centers provide *sure* protection to personnel. Units can be quickly de-energized for maintenance or inspection work. Units cannot accidentally fall out of *Track-Guide* mechanism during inspection or maintenance.

Reliability . . . versatility . . . economy . . . strength . . . safety. You name the feature — A-C motor control centers have it. *Ask your A-C representative or distributor for all the facts. Or write* **Allis-Chalmers,** *Industrial Equipment Division, Milwaukee 1, Wis.*



6. Mounting of pilot lights and pushbuttons on the removable control units eliminates failures common with hinged wiring.

Track-Guide is an Allis-Chalmers trademark. A-1486

STRICTLY PERSONAL . . .

Corp. of America; **Vaughan Gaddis,** Monsanto Chemical Co; **Richard Van Buren,** J. M. Huber Co; **Andreas Von Koeppen,** Western Michigan University and **James Winn,** Simpson Lee Paper Co.

John M. Rudolph has joined the sales engineering staff of Paper Converting Machine Co. He will promote sales within all Latin American countries. He has sold equipment in Europe, Mexico.

Frank Clawson, formerly regional mgr., Brandson Sales, Inc., now heads Paper Mill Suppliers Inc., Kalamazoo, Mich., as exclusive agency for dryer felts made by Albany Felt Co.

Theodore W. Gleue is now coordinator, inventories of materials and supplies, Consolidated Water Power & Paper Co.

Darrell M. De Witt succeeds Mr. Gleue as head storekeeper and he in turn is succeeded by **Elmer R. Habeck** as assistant storekeeper.

George E. Hall has been appointed to the newly-created position of manager, sales development, construction machinery division of Allis-Chalmers Mfg. Co. He will be responsible for product sales information, sales programs, market and application studies, etc., Mr. Hall has been with Allis-Chalmers since 1946, first in the West and more recently manager of the Eastern region.

George B. Hills, Jr., has joined Stone Container Corp. as general manager. He was previously vice pres., Martin Paper Products, a subsidiary of MacMillan, Bloedel & Powell River Ltd.

August Beucke is sales representative for Johns-Manville Sales Corp. in its Cleveland territory. Mr. Beuke was an analyst for Bankers Trust Co., of New York City, before joining Johns-Manville last year. . . . **Marwan R. Kamal** has joined General Mills Central Research Laboratories, Minneapolis, as project leader in the Polymer Research Dept. Mr. Kamal has completed the requirements for a ph.d. in organic chemistry at the U. of Pittsburgh.

Harold A. Bendixen has been elected president of Clinton Corn Processing Co. He succeeds **Roscoe C. Wagner,** who has retired. Also, **Reynold P. Jurgensen** was promoted to senior vice pres.

Suppliers

Stephen J. Elkins is now sales representative for Oriskany Waterbury Felts in the PenJerDel territory for H. Waterbury and Sons Co. He had been in sales for them in New York.

ST. REGIS — Bucksport, Maine
1961 EXPANSION

The lighter buildings in the photograph comprise 90,000 square feet of housing for new facilities which are part of a major expansion and modernization program at Bucksport. Lockwood Greene is responsible for general engineering of the project—buildings, paper machine drives, off machine coater, supercalender, clay handling, electrical and mechanical services.

LOCKWOOD GREENE ENGINEERS INC.

316 Stuart St.
Boston 16, Mass.

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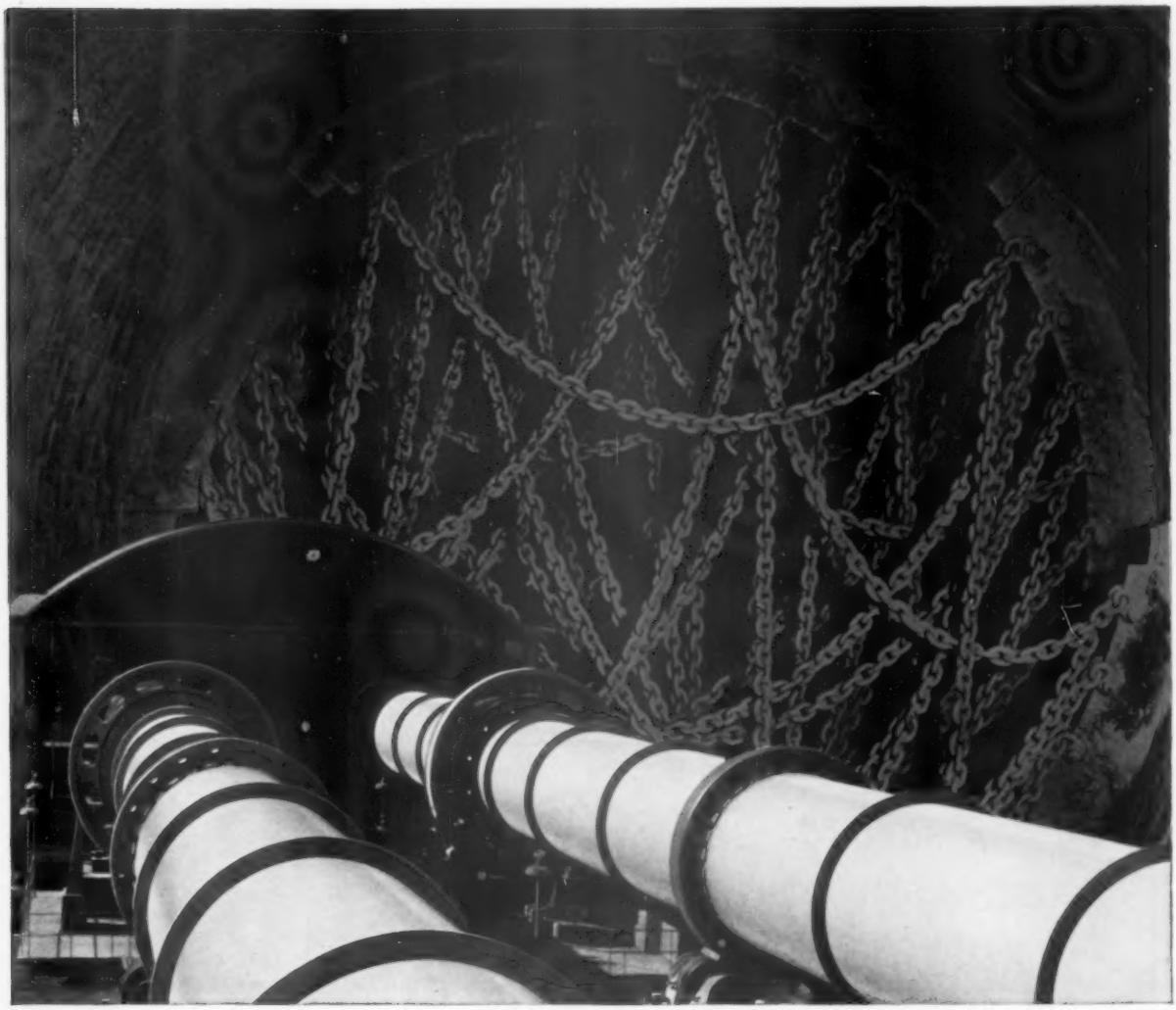
Montgomery Bldg.
Spartanburg, S. C.

Over a century of industrial plant design experience

Brochure on request

ALLIS-CHALMERS



Fuel costs down 40% — capacity up 10%

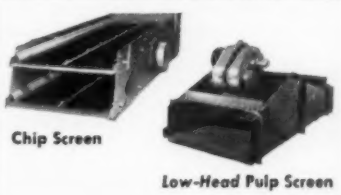
in lime recovery kilns with Allis-Chalmers chain system

Allis-Chalmers lime sludge kilns recover lime at half the cost of new lime. Biggest contributor is a carefully designed chain system, located in the feed end of the Allis-Chalmers rotary kiln.

These chains provide added heat transfer area . . . direct the flow of hot gases over the sludge bed . . . lift the sludge into the path of the gases. The result is more complete heat recovery, a drastic reduction of fuel costs, minimum dust loss, and an increase in the effective capacity of the kiln.

Process efficiency also gets a boost from A-C screens. Chip screens, for example, remove a higher percentage of chips, dust and dirt. Chips travel at a uniform rate, stratification is rapid as well as thorough. *Low-Head* pulp screens handle higher consistencies, save on water and power. Maintenance is simple; mechanism can be removed as a unit.

Low-Head is an Allis-Chalmers trademark. A-1313



Chip Screen

Low-Head Pulp Screen

See your A-C representative for detailed information, or write **Allis-Chalmers**, Industrial Equipment Division, Milwaukee 1, Wisconsin.

STRICTLY PERSONAL . . .

Cramer J. C. Standish Reed Chagnon J. S. Standish Bridge

Albany Felt Names New Officers

Everett C. Reed has been elected president of the multi-plant operation of Albany felt Co. He succeeds **John C. Standish**, who continues as board chairman. Mr. Reed joined Albany upon graduation from Lowell Technological Institute. He advanced to plant manager in 1953, was elected an officer in 1954 and promoted to vice president i/c manufacturing in 1957. He was named executive vice president last November.

Other promotions: **Z. J. Chagnon** and **J. Spencer Standish** to executive vice-presidents; **Albert C. Cramer**, vice-president (he will retain his post as assistant to the president), and **Douglas P. Bridge** as secretary.

C. E. Meili has been made vice president, Beloit International (Canada) Ltd., Montreal, Quebec, according to **C. E. Macklem**, president.

George A. T. Moore is manager, sales, paper, corrugated, building materials, A. E. Staley Mfg. Co. He succeeds **Robert L. Schuerman**, who has been promoted to further sales responsibilities.

What makes the first gear-type coupling still first choice?

Check design . . . and you'll find Fast's Couplings (the original gear-type couplings) are superbly engineered, ruggedly built, smoothly running units designed to outlast the machines they connect.

Check completeness of line . . . and you'll find Fast's Couplings come in a complete range of sizes and types for shafts from ½" to 32" and larger.

Check service . . . and you'll find Fast's Couplings are backed by expert help from experienced field engineers . . . while outstanding stock facilities throughout the country insure speedy delivery of your coupling orders.

Check popularity . . . and you'll find Fast's Couplings are the choice of more industrial equipment manufacturers than any other shaft coupling.

Check Fast's for your coupling needs today.

KOPPERS COMPANY, INC., 1306 Scott St., Baltimore 3, Md.

KOPPERS

FAST'S COUPLINGS

Engineered Products Sold with Service

Boll **Norlin**

PULP & PAPER, in its June 12 issue, inadvertently mismatched the pictures of **Richard L. Boll**, sales engineer for Bolton-Emerson in the Southwest, and **Jack M. Norlin**, manager of paper mill sales for The W. S. Tyler Co. The two in question are correctly identified above.

Pacific

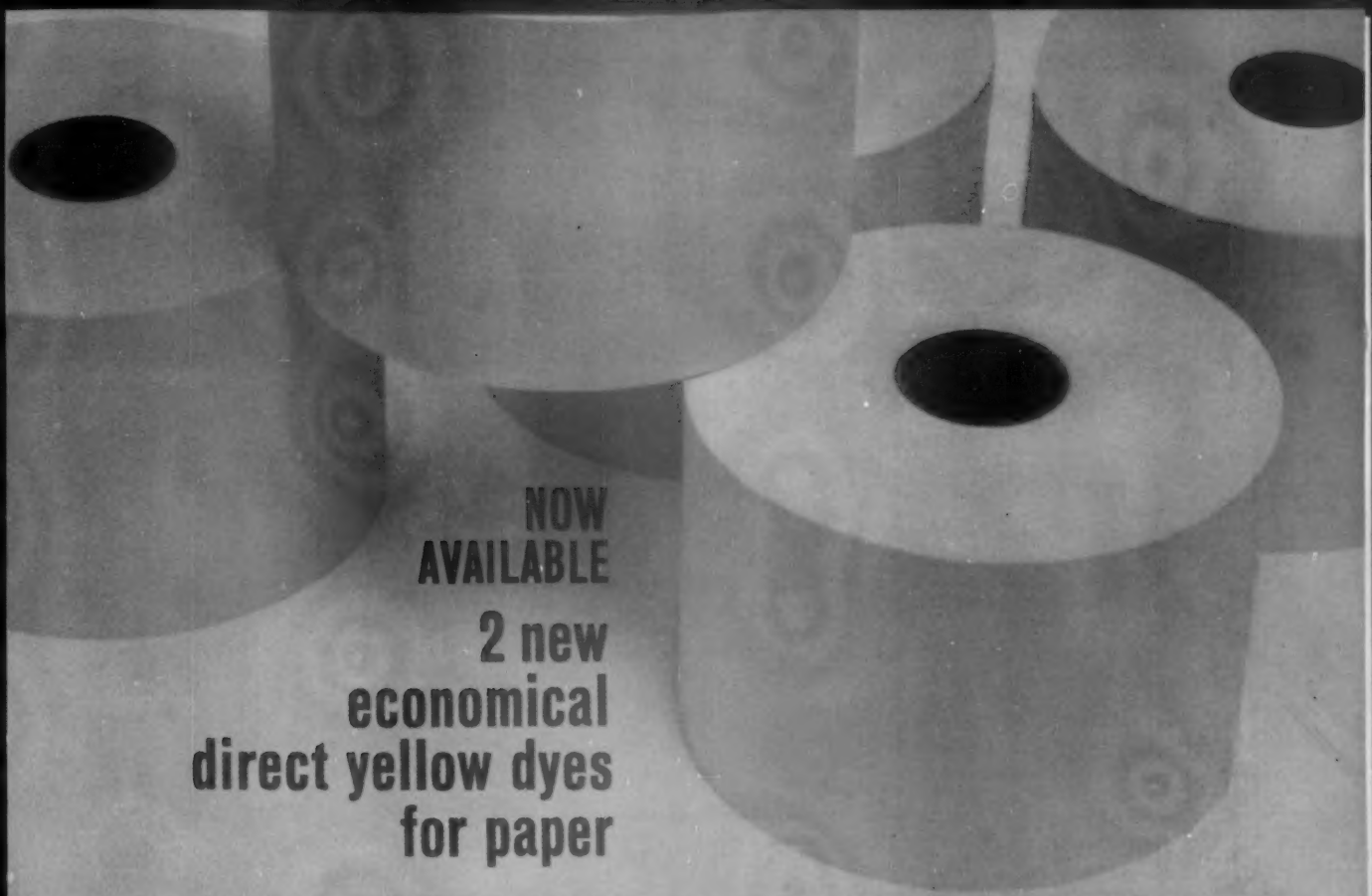
Davidson **Leith**

C. W. Davidson advances from tech. supervisor to supervisor-product quality and development at Crown Z's Camas (Wash.) Div. **James Leith** is promoted from asst. tech. supervisor to tech. supervisor. Mr. Davidson's predecessor was **Walter C. Jacoby**, whose promotion and transfer to product manager at San Francisco headquarters was announced in March 20 issue.

Clyde Fishback has been appointed Northwest rep. for McCulloch chain saws and accessory tools in Washington, Montana, Alaska, Idaho. During past 5 years he was on field service assignment.

Robert F. Neilsen is sls. mgr, Lamb-Grays Harbor Co., Hoquiam, Wash., succeeding Victor Hanson who is retiring as vice pres.-sls. mgr. He directs domestic and foreign sales engineering.

Directors of Columbia River Paper Co., Portland, Ore. have elected **Robert H. Noyes Jr.** and **Cecil Taylor** as vice presidents according to **Nils G. Teren**, president. Mr. Noyes joined the firm's sales dept. in 1938 and became sls. mgr. in 1947, a position he now holds. Mr.



NOW AVAILABLE

2 new economical direct yellow dyes for paper

FASTUSOL® YELLOW RP
FASTUSOL® YELLOW RG

The dyes used in the coloring of paper add considerably to the cost of the finished sheet. GDC has now developed two new, low-cost, non-dusting direct yellows which offer all the benefits of a premium direct dye at minimum expense.

These new FASTUSOL YELLOWS produce extremely light-fast and bright greenish-yellow shades of the highest degree of even-sidedness. They are ideal for coloring all types of paper—bond, ledger, cover, text, etc.—both sized and unsized.

FASTUSOL YELLOW RP and RG are readily bleached with chlorine for simplified re-use of broke. They can be added dry to the beater without danger of showing color specks. They show no indication of burning-out or migration, hence being eminently suitable for coloring board dried at high temperature.

Try these dyes now in your furnish. The quality of our dyes is backed by the finest skilled technical service and prompt deliveries.

Write or call our nearest sales office for samples and additional information.

From Research to Reality

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FASTUSOL YELLOW RP AND RG MANUFACTURED BY GENERAL ANILINE & FILM CORP. AND SOLD UNDER ITS TRADEMARKS. "FASTUSOL YELLOW RP AND RG" BY GENERAL DYESTUFF CO. ALL OVER THE WORLD.

Dead-Weight Thickness Caliper converts 1/1000ths to 1/10000ths of an inch

for critical measurements to 1/2 inch

Vernier scale on indicator blade gives exact direct reading in one ten-thousandths of an inch, for calipering papers, films, foils, boards, coatings. One of many models.

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Micrometers/Burst Testers/Basis Weight Scales for papers, films, foils, boards.

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Manufacturers
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River Forest, Illinois

STRICTLY PERSONAL . . .

Taylor, formerly of Minnesota & Ontario Paper Co., affiliated with Columbia River's Vancouver (Wash.) Div. in 1953 and was later promoted to gen. mgr. of manufacturing, his present position . . . **Robert J. Scoutten** has been appointed vice pres. of sales for western region of Weyerhaeuser Co's. shipping container division. Making San Francisco his headquarters, he will supervise sales of production from the firm's shipping container plants in western U.S. (including Hawaii) . . .

Merrill Robison is now Western regional sales representative, pulp sales, Weyerhaeuser Co. This is in addition to his being asst. to the manager of manufacturing of the pulp and paperboard division. He will handle pulp sales in the Pacific Coast states, reporting to **John Shethar,** manager, Midwestern pulp sales, Chicago.

South

C. Ross Zachary has been promoted to product development engineer, West Virginia Pulp and Paper Co's. Charleston, S.C. mill. He succeeds **F. David Kintler,** who leaves to obtain an MBA degree from the University of Cincinnati. Mr. Zachary joined West Virginia in 1959 after graduating from N.C. State.

David B. Hilley is now chief industrial engineer for the forest products operations of the Packaging Div., Olin Mathieson Chemical Corp. He will headquarter in West Monroe, La.

Marcus Jackson Peters has joined John W. Bolton & Sons, Inc. as sales representative in Georgia, Alabama and Florida. He lives at 2839 Santa Barbara St., Decatur, Ga.

Donald J. Guillet, Huyck Felt Co., is now field service engineer for Arkansas, Louisiana, Texas and portions of Alabama, Mississippi and Oklahoma.

Ronald Estridge received the Annual Westbrook Steel Gold Medal Award for 1961. It is given to the candidate for the doctorate of philosophy who submits the outstanding thesis for the year. His paper: The initial retention of fibers by wire grids. Upon completion of his army tour, Mr. Estridge will join Albermarle Paper Mfg. Co. as a senior development engineer.

The southern exposure: This year's graduates in pulp and paper technology from North Carolina State College's School of Forestry have accepted employment in pulp and paper with companies from Texas to New York, from Florida to Arkansas. Those who have accepted employment with companies are **Roy G. Avera,** Champion Paper and Fiber Co.; **Charles C. Brown,** Albemarle Paper Mfg. Co.; **Bobby Deaton,** St. Regis Paper Co.; **Thomas Hinson,** Bowaters-Carolina; . . . **turn to p. 64**

We bet millions on our couplings

When you buy a Fast's coupling, you can bet your bottom dollar everything was built on the spot, not assembled piece by piece from other suppliers. Koppers multi-million dollar manufacturing facilities are the most modern in the industry . . . with advanced program machines, highly accurate gear shapers, a complete forge shop.

For example, all Fast's Couplings are jig-drilled and jig-reamed for greater interchangeability of parts. Result: you get high-quality, smooth-running, long-lived units that are the choice of more equipment manufacturers than any other gear-type coupling.

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FAST'S COUPLINGS

Engineered Products Sold with Service

TEST SHEET

TEAR OFF THIS SHEET AND TEST IT FOR WET STRENGTH

SOAK IT!

THEN PUT IT THROUGH THE WET TENSILE TEST – NOTE HOW IT MAINTAINS A HIGH PERCENTAGE OF WET STRENGTH! TURN OVER TO LEARN HOW THIS SHEET GOT ITS WET STRENGTH.

CYANAMID

TEST SHEET

THIS SHEET PRODUCED BY **CYANAMID'S HE* PROCESS** IN CONJUNCTION WITH

MELOSTRENGTH® RESIN

Cyanamid's exclusive **HE** process, using **MELOSTRENGTH** Wet-Strength Resin, provides remarkable wet-strength results. If you're **economy** minded, you would appreciate using 30% to 50% less wet-strength resin while still maintaining specifications. If you're after **greater strength,** you can achieve papers with wet-strength never before attainable, using the same amount of resin required for ordinary strength.

MELOSTRENGTH gives you: 1. **Strong paper** even when soaked. 2. **Permanence of strength** even under storage conditions of high humidity. 3. **Good resistance** to most chemicals and acids. 4. **It is non-linting**—wipes clean without shedding.

MELOSTRENGTH Wet-Strength Resin can be applied to paper of practically every weight and grade. It is especially effective in the manufacture of grocery bags, tissues, napkins, towels, laundry tags and auto seat covers. For full information, contact us.

AMERICAN CYANAMID COMPANY / PAPER CHEMICALS DEPARTMENT / 30 ROCKEFELLER PLAZA, N. Y. 20, N. Y.

melostrength® paper
Wet or Dry .. It's Stronger®

CYANAMID

*HIGH EFFICIENCY PROCESS—PATENT APPLIED FOR BY AMERICAN CYANAMID COMPANY

The Puget Pulp mill distinguishes the Bellingham skyline.

PUGET PULP *
will strengthen your competitive position

PUGET SOUND PULP & TIMBER CO.
BELLINGHAM • WASHINGTON

* A SOFTWOOD, CHLORINE DIOXIDE BLEACHED SULPHITE PULP

STRICTLY PERSONAL . . .

starts on p. 60 . . . **William H. Peele, Jr.** Halifax Paper Co.; **Edmund C. Puckhaber,** Dixie Cup Co.; **Albert J. (Buddy) Rhodes,** St. Regis Paper Co.; **William R. Sumner,** Chesapeake Corp.; **Michael Wilkenson,** J. O. Ross Engineering; and **Ronald L. Younger,** International Paper Co.

Graduates who have accepted fellowships for post graduate study are **Ted A. Owens,** who will pursue the master of business administration at the Harvard School of Business Administration; **Louis H. Stone,** who will seek the master's degree in business administration at the University of North Carolina; and **Cecil Neal Carter** and **Roger Dew Lambert,** both of whom will enter the Institute of Paper Chemistry.

George R. O'Hara, Gary C. Schultz, and **James V. Gruzdis, Jr.** will attend summer school at North Carolina State College.

Albert R. Kiser will enter military service. **Gilbert C. Garner** and **Charles T. Holloman** have not yet announced definite plans.

Canada

Fifty Years of Powell River's History Told in New Book

Members of the Powell River Co. organization, past and present—and they are scattered all over the world wherever pulp and paper are produced—will be fascinated by a 200-page book entitled "Powell River's First Fifty Years" recently issued by the Powell River News ($4.95 soft cover binding, $6.95 hard cover).

In picture and story, the book tells about the big British Columbia newsprint company from its inception in 1910 when Dr. Dwight F. Brooks, Anson Brooks and M. J. Scanlon, of the old Brooks-Scanlon organization, laid the foundation for what was to become the world's greatest single newsprint mill, until last year when the merger with MacMillan & Bloedel took place.

Between those dates significant history was written, and most of it is presented in the book, which depends for much of its interest on the remarkable collection of old photographs of events and personalities extending back to the days when the paper city of today was merely a clearing in the forest.

One of the most informative features of the book is the outline of Powell River Co.'s history, written by J. A. "Jock" Lundie, for many years the company's "pr" chief at Powell River.

M. W. Mackenzie, president of Chemcell, Ltd., and a director of the Celanese Corp. of America, has been elected to the board of Canada Iron Foundries.

F. J. Giffen, formerly mgr., manufacturing, Canadian International Paper Co., Montreal, has been appointed vice pres., manufacturing. . . . **J. V. Christensen,** pres., Tahsis Co., planning construction of a pulp mill on Vancouver Island, has been appointed honorary Danish consul for British Columbia.

Don McLaurin, who resigned recently as mgr., Island Paper Mills, MacMillan, Bloedel & Powell River's new fine paper operation near New Westminster, B.C., is joining Victoria College, branch of the Univ. of B.C., in the fall and plans to do some consulting work for paper mills.

Hunt B. Paterson has been named gen. mgr., Crown Zellerbach Paper Co., Ltd., in Vancouver, i/c paper merchandising. Formerly mgr., wholesale paper division, he went to B.C. from San Francisco two years ago. Included in his sphere of responsibility are Hudson Paper Co. and Columbia Paper Co. . . . **Stephen Pauley** is the newly appointed assistant mgr., Crown Zellerbach Canada's pulp and paper converting plant at Richmond, near Vancouver. . . . **Lucien G. Rolland,** pres. and gen. mgr., Rolland Paper Co., Montreal, was a speaker at the annual meeting of the Canadian Mfrs. Assn. in Vancouver.

Donald J. Schalk, gen. sales mgr., Spruce Falls Power & Paper Co., has taken over the duties formerly carried out by **R. J. Appert,** who has gone to Neenah, Wis., as vice president of Kimberly-Clark Corp.

Robert J. Healey has been named controller of Westminster Paper Co., New Westminster, B.C., succeeding **A. L. Taylor,** who has joined the head office staff of Scott Paper Co. at Philadelphia.

George L. O'Leary has been appointed vice pres., marketing, for Westminster Paper Co., succeeding **N. W. Markus, Jr.,** who has rejoined Scott Paper Co. in Philadelphia, as director of marketing services. Mr. O'Leary had been national retail sales mgr for the company since 1956.

Tony Laanamae is manager of market research for all divisions, Crown Zellerbach Canada. He joined the company's logging division at Beaver Cove in 1951 and later entered University of British Columbia where he graduated with a bachelor of commerce degree four years later. He joined CZC's market research department two years ago. **David Owen** has been appointed market research analyst. Another UBC graduate, Mr. Owen joined CZC at Fraser Mills in 1949.

Several changes in Crown Zellerbach Canada's pulp and paper sales department have been announced: **William Davidson** as mgr., distributor and consumer products; **Keith Lord,** sales supervisor; **Ray Pascoe,** district sales rep.; **Harvey Oxspring,** sales rep. in Manitoba; **Robert Bergen,** sales promotion co-ordinator; **Bruce Garner,** design co-ordinator.

Knox Felts
KNOX WOOLEN COMPANY
CAMDEN, MAINE
America's First Manufacturer of Endless Paper Machine Felts

. . . LITERATURE

Sulfate spent liquor recovery
evaporation and combustion, are featured in a special report from Sweden. Charts, schematics and photographs are backed up with a technical description of various Rosenblad systems.
Report: No. E172a.
Supplier: Rosenblad Corp., 1270 Sixth Ave., New York 20, N.Y.

New doctor blade source
is announced by John W. Bolton & Sons, Inc., who is now adding this product to its machine knife division. Bolton claims its experience since 1905 in related items will enable it to produce doctor blades that will give longer life, better performance, clean rolls and no scoring. Bolton doctor blades are now available in all sizes and types in these materials: Tempered carbon steel, cold rolled steel, stainless steel, K-Monel steel, phospher bronze, laminated plastic, special alloys and materials for special applications.
Bulletin: No. DB-61.
Supplier: Machine Knife Div., John W. Bolton & Sons, Inc., Lawrence, Mass.

High speed rotary sheeting
is subject of bulletin, "Pre Hi Sheeter." Applications include spot cutting to register from roll or printing presses; single sheeting with electronic sorting and multi-sheeting for high production.
Bulletin No. 17 PH
Supplier: Smith & Winchester Mfg. Co., So. Windham, Conn.

Geared flexible motor couplings
are subject of six page folder. All data on Link-Belt motor couplings are combined, including three new features: A new corrosive duty cover with exceptional resistance to acids, alkalines and solvents; a new spacer adapter that speeds and eases maintenance of coupling, driven pumps and compressors by permitting installation with an access gap between shaft ends; and a larger size added to the line that now extends application range to a 2⅞ in. bore size.
Folder No. 2975, "Type MC Geared Flexible Motor Couplings."
Supplier: Link-Belt Co., Dept. PR, Prudential Plaza, Chicago 1, Ill.

Aluminate sulfate properties
and uses are described in new 40-page handbook. Included are data on manufacture of alum, grades available, principal uses and methods of handling. A major feature is a series of conversion charts and tables, e.g. gravity and weight equivalents, solubility, alum feed rates, gravity and temperature relationships, viscosity determinations and analytical procedures.
Handbook: Aluminum sulfate
Supplier: Stauffer Chemical Co., 380 Madison Ave., New York, N.Y.

A-C motors from 1 to 2000 hp
and product features of each motor are described and explained for easy selection of the right motor for every application.
Bulletin: No. B-2515, "Duty Master A. C. Motors."
Supplier: Reliance Electric & Engineering Co., Cleveland 17, Ohio.

Westinghouse drives world's fastest kraft paper winder

Two Westinghouse 300-hp Life-Line H d-c motors and a Westinghouse 400-kw motor-generator drive this 7200-fpm winder, rated the world's fastest, for Union Bag-Camp's new #7 machine at Savannah. These drives assure uniform threading speed, smooth and rapid responses, simple and easy operation. Westinghouse features in these drives also reduce downtime to a minimum, improve accessibility and safety, simplify maintenance. For more details on this #7 machine, see the next page.

J-96162-1

Westinghouse

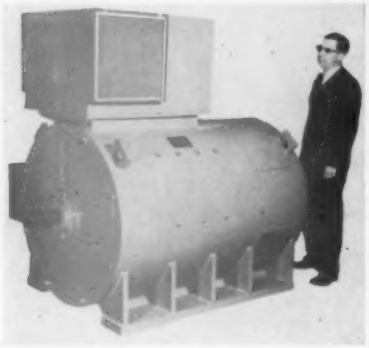
NEW EQUIPMENT . . .

starts on p. 19 . . . maker" belts, the new Extremultus belting is designated Type CV. By introducing 4CV belting, the company says it has been able to provide a new belt with a 22% increase in power transmission capacity at no additional cost. Types 5CV and 6CV, giving 25% and 50% more capacity than 4CV, are narrower belts with resultant improvement in speed regulation and draw control. Through increased flexibility of new plastic core, a heavier belting has been developed for use on smaller diameter pulleys.

Supplier: **Extremultus, Inc., 130 Cooledge Ave., Englewood, N.J.**

D-C motors and generators

. . . with larger frame design



Applications: For heavy industrial uses.

Features: D-C motors and generators (type SK) frame diameter 190 with reduced inertia for faster response and increased mechanical stability for lower vibration are now available from Westinghouse. Ribbed construction at frame base gives self-supporting pre-aligned rigidity. By use of brackets and ball bearings, weight and required floor space are reduced. In addition, improved insulation and commutation, lengthened armature and decreased armature diameter result in reduced inertia to give necessary response for automated production lines.

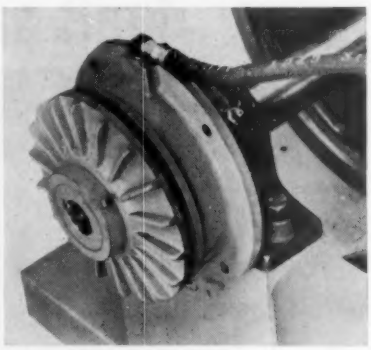
The higher commuting ability, improved response speed, and better regulation are new performance standards for these sizes and are supplemented with compensating field windings as required.

Specifications: Typical machine ratings are 500 hp at 850 rpm, 240 volts, dripproof enclosure and 800 hp at 1150 rpm, 600 volts force-ventilated for heavy industrial applications. Corresponding generator ratings offered with dripproof construction are 480 kw at 850 rpm for 250 volt d-c power supply.

Supplier: **Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa.**

Air brake

. . . uses forced draft cooling



Application: For stopping rotating parts.

Features: Uniform, sure stops without brake fade are assured due to special design feature which uses forced draft fin cooling. Isolated friction disc is protected from heat buildup to the very maximum.

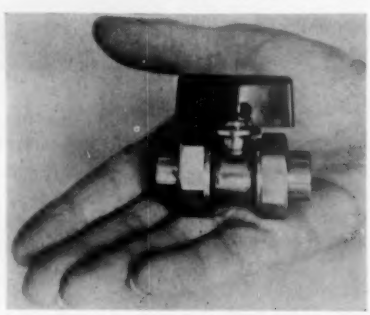
"Air Champ" uses flange or torque arm type universal mounting.

Specifications: Air brake comes in three models for applications up to 4,300 in. lbs. torque.

Supplier: **Horton Mfg. Co., Inc., 1179-15th Ave. S.E., Minneapolis 14, Minn.**

Miniature ball valves

. . . for critical control



Applications: For sampling, instrumentation, metering and similar applications.

Features: These ball valves are compact, offer extreme ease of operation and maximum flow efficiency. They are especially suited, says the manufacturer, for critical control of fluid flow since small effort is required to rotate the valve handle and the ball is fully supported by Teflon seat rings.

Ball valves are available for manual and motorized operation and can be used in place of needle valves, pet cocks, bib cocks, plug valves and faucets, to gain rapid operation and freedom from leaks regardless of pressure and long periods of idleness.

Specifications: Valves are made in ⅜, ¼, ⅝ and ½ in. sizes and are available in type 316, 304 and other stainless steels with Teflon seats and packing. Maximum pressure rating is 1000 psi. A union nut end connection permits wide range of interchangeable end pieces such as screwed, flanged and bib-end as well as special adaptors. This design also permits removal of the body from the line without disturbing piping.

Supplier: **Valve & Fittings Div., Cooper Alloy Corp., Hillside, N.J.**

Lift truck

. . . has vacuum handling

Application: For moving paper rolls and cartons.

Features: Surface vacuum is used to handle rolls and cartons—even if the surface is porous. Using internal vacuum principle, air is exhausted from a thin paper or plastic wrapping, drawing cases or roll tightly together and locking them securely to the face plate of the lift truck attachment.

Advantages: Unit does not have clamp arms for more maneuverability and tighter packing. Face plate is closer to upright and weighs less than other attachments for less reduction of basic truck capacity. Less operator skill is needed; operating cycles are faster and safer and no other support is needed to move unit loads.

Specifications: Experimental face plates have been developed which include a flat plate which can be positioned vertically and horizontally; a special plate for handling cartons and a paper roll face plate. Face plates are light, easily detachable and can be switched in seconds by the operator, without leaving his seat.

Supplier: ***Hyster Co., P.O. Box*** **DCVR, Portland 8, Ore.**

CHEMICALS

"Daran" high barrier
paper coating latex is now available from Dewey & Almy Chemical Div., W. R. Grace & Co. Daran is a polyvinylidene chloride polymer in a latex (water-based) form. Development of this latex permits polyvinylidene chloride, already widely used in barrier packaging as free films and as solvent coatings for cellophane, to be coated on paper. Paper and board coated with the new latex have much higher moisture vapor resistance per unit weight than plastics now used for coatings and in addition they are virtually impermeable to grease, oil, gases. The new coating combines barrier properties and economy that will enable packaging materials to better compete with plastics, metal and glass.
Supplier: Dewey & Almy Chemical Div., W. R. Grace & Co., Cambridge, Mass.

Water emulsion copolymers
of vinylpyrrolidone have been announced by Antara Chemicals, a division of General Aniline & Film Corp. This is company's first entry into water-emulsion polymers. Trademarked, "Polectron," the series open new possibilities for water-emulsion polymers because they offer dye receptivity, unusual emulsion stability, excellent adhesive properties and unique film-forming properties. Applications will include paper coatings.
Supplier: The Acetylene Chemicals Dept., Antara Chemicals, 435 Hudson St., New York 14, N.Y.

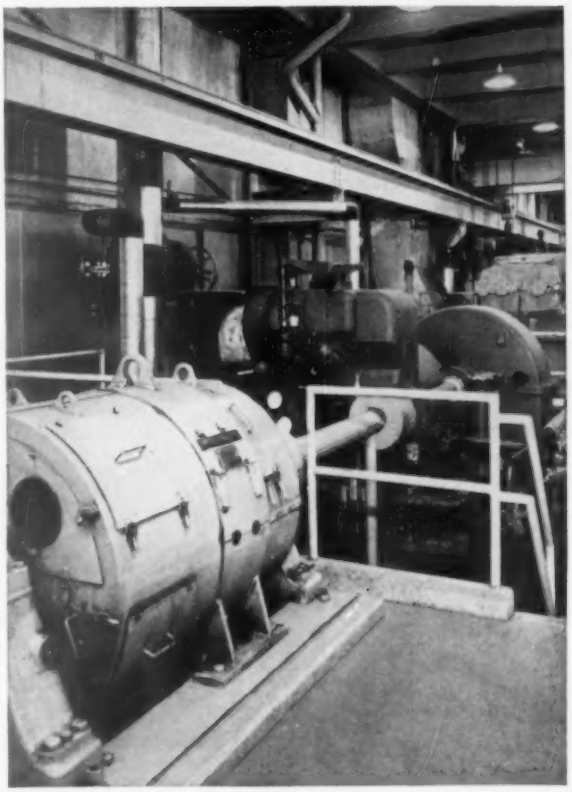
Enjay's butyl latex
is now available. Low permeability of butyl films to water vapor, air and other gases suggests its use in air-barrier and food-wrapping papers. It is compatible with a wide range of resin and elastomer emulsions.
Supplier: Enjay Chemical Co., Room 1222, 15 W. 51 St., New York 19, N.Y.

New paper coating emulsion
has been announced by Rohm & Haas Co. This acrylic-modified vinylidene chloride emulsion is highly stable and is said to have unusually good film-forming characteristics. Applied to paper or board by standard coating methods, this emulsion forms films which are said to offer exceptionally good water, solvent, grease, scuff and block resistance, and also provide an excellent water-vapor barrier.

Designated Rhoplex R-9, the product is aimed at decorative and functional applications and has also been developed with FDA requirements in mind. Suggested applications: clear or pigmented gloss coatings for decorated paper or artificial leather; multi-trip bottle carriers, food packaging. Characteristics: relatively low foaming characteristics and compatibility with wide variety of pigment dispersions. Flow and covering properties are such that it can often be applied without modification in the coating plant.
Supplier: Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.

Synthemul wax emulsion
is a low viscosity, small particle size wax emulsion that blends easily with most urea and phenolic resins and is not sensitive to hard water. Uses: paper sizing, water-repellant cartons, and where water resistant coatings are required.
Supplier: Reichhold Chemicals, Inc., RCI Building, White Plains, N.Y.

Westinghouse turbine drives world's fastest kraft paper machine



Union Bag-Camp's new #7 machine rated at 3000 fpm. Its line shaft is driven by a 3,000-hp Westinghouse steam turbine and reduction gear. This turbine is of the multi-stage, non-condensing type, operates at a normal 400 psi and 750°F., exhausting at 80 psi . . . and is controlled within ±0.1% of rated speed. Westinghouse design permits operation from maximum to zero speed on governor control and the operating speed range is always below first critical speed . . . factors which insure exceptional control, reliability and equipment life. For more details on Union Bag-Camp's new machine, see next page.

J-96162-2

Westinghouse

Mathieson takes costs out of caustic deliveries

A major cause of high shipping costs is the distance between your plant and your supplier. When your caustic soda is marked Mathieson, you can count on fast, economical delivery from one of eight producing plants and shipping points (with a ninth under construction) covering the industrial East.

Other ways Mathieson lowers delivery costs? Only Mathieson ships 73% caustic by truck for fewer trips, less weight on shorter hauls. Only Mathieson schedules truck shipments so you get caustic when you need it.

And, of course, Mathieson service backs every order with technical assistance—on the spot or in our laboratories. Call or write OLIN MATHIESON, Baltimore 3, Md.

Ammonia • Carbon Dioxide • Caustic Soda • Chlorine • Hydrazine and Derivatives • Hypochlorite Products • Methanol • Muriatic Acid • Nitric Acid • Soda Ash • Sodium Bicarbonate• Sodium Chlorate • Sodium Chlorite Products • Sodium Methylate • Sodium Nitrate • Sulfur (Processed) • Sulfuric Acid • Urea 8957

CHEMICALS DIVISION Olin

. . . Tennessee River mill

Continued from page 41

The two-drum winder has a maximum speed of 5,000 fpm. Drums are 24 in. in diameter, shear cut slitters are used and both drums are motor driven.

The winder is followed by a cross conveyor equipped with shaft puller, roll breaker, and hydraulic lowering device.

The machine is driven through an Extremultus belt drive by a 2,300 hp turbine, permitting speeds of from 400 to 2,000 fpm. Oil is supplied to calender and dryer sections by a continuous oiling and filtering system.

To attain maximum accuracy in weight control and uniformity, a scanning radioactive gauge is used with pick-up mounted at the reel. An automatic control maintains uniform moisture.

A recording linear footage counter is located at the scale following the winder.

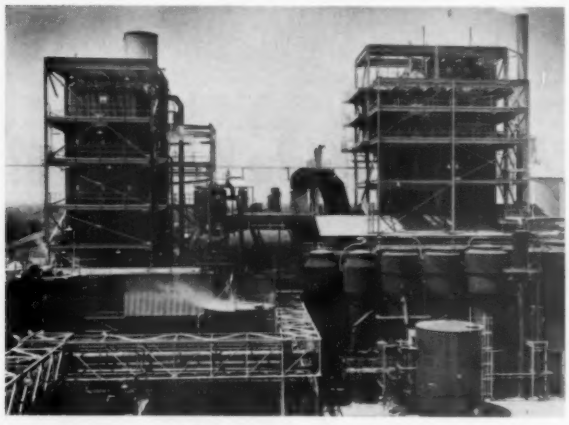
Leaving the weighing station, rolls are conveyed to the warehouse level by a lowerator.

A paper storage warehouse designed for retention of upwards of 7,500 tons of rolls stored on-end adjoins the machine building. The finishing area includes a 120-in. rewinder capable of winding 72-in. diameter rolls. A covered rail loading dock extends along one side of the warehouse which is also provided with truck loading facilities.

Evaporators

WEAK LIQUOR is processed through a sextuple effect evaporator to increase solids from 13½% to 50% total solids. Each effect has a stainless steel mesh pad entrainment eliminator in larger than normal diameter domes.

Liquor flow through the unit is with the feed split between the fifth and sixth effects, fifth effect discharge also going into the sixth. Discharge from the sixth effect



SIX-EFFECT EVAPORATORS (right) increase weak liquor solids from 13½% to 50%. In background is power group.

passing to the fourth, then to soap skimmer, back to the third effect, to the first effect, through the second effect in two passes and to strong liquor storage. Each effect contains an internal liquor heater for elevating the liquor temperature as it passes from effect to effect. Capacity of

Westinghouse helper drives on world's fastest kraft paper machine

Twenty-two Westinghouse Life-Line H d-c motors make up the helper drives on both wet and dry ends of this new Union Bag-Camp high speed machine. These Westinghouse motors feature special insulation (much longer insulation life than ordinary Class B motors), a controlled ventilation system and 35% increase in commutating ability . . . to give this machine close regulation and faster accelerations, exceptional performance. For more details on this #7 machine, see next page.

J-96162-3

Westinghouse

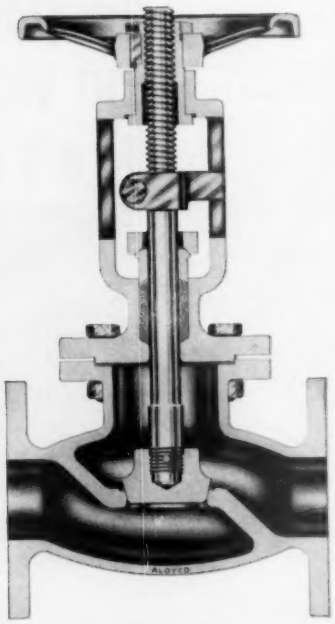


Fig. 311-B

Do you know the advantages of the new Aloyco Globe Valve design?

The design of 150 lb. globe valves of sizes 2" and larger features a non-rotating stem, non-rising handwheel with disc assembly pinned to the stem. This is accomplished by rotating the handwheel and yoke bushing assembly and preventing stem rotating by adding a stem key which fits into the bonnet yoke. The major advantages of the new design result in:

- No spiral wear pattern on stem from hardened packing or hard deposit in stuffing box.
- Rapid visual check of throttling control by observing location of stem stop.
- No galling of back seat because of rotating stem.
- No galling between seat and disc.
- Stronger disc to stem connection.
- No spinning of disc.
- Less corrosion attack because of elimination of cavity between stem and disc.

These new design advantages are available in stainless steel and corrosion resistant alloys in sizes 2" and up. For full information write for Bulletin #7, Alloy Steel Products Company, Inc., 1301 West Elizabeth Avenue, Linden, New Jersey. O.11

Subsidiary of

ALLOY STEEL PRODUCTS COMPANY

Boston • New York • Wilmington • Atlanta • Birmingham • Baton Rouge • Buffalo • Pittsburgh • Chicago • St. Louis • San Francisco • Los Angeles • Seattle

this unit is 423,000 lbs./hr. of feed with an evaporation of 324,000 lbs./hr. and an economy of 5.41 lbs evaporation per pound of steam.

Recovery

THE CHEMICAL RECOVERY furnace is rated at 1,250,000 lbs. of black liquor solids per day, 183,000 lbs. of steam per hour at 600 psi. This unit is of standard design with a twin wheel side by side cascade evaporator, economizer, platen type superheater, decanting bottom, single sided electric motor driven steam supplied soot blowers, turbine driven induced draft fan and smelt dissolving tank vent demister. Liquor going to the unit passes through a twin unit wet bottom precipitator with a design efficiency of 98%. Liquor flow to the ten spray nozzles at 68-70% total solids is measured by a magnetic flow meter and controlled by a hydraulically coupled variable speed pump with air flow being completely automatically controlled based on liquor flow.

Combination oil-gas auxiliary burners have gas pilot torches, and a complex system of safety controls designed to incorporate the latest developments in safety devices.

Green liquor density leaving the dissolving tank is automatically controlled by a radioactive density measuring gauge that controls the weak wash dilution to the dissolving tank.

Controls for furnace and evaporator are mounted adjacent to each other so that one operator can be responsible for the operations of the furnace, evaporator and precipitator.

Soap skimmed from the black liquor during the evaporating phase is delivered to a soap storage tank at the tall oil plant. From this storage tank the soap is processed through the tall oil cooker with the finished tall oil being pumped to tall oil storage for shipment by rail to purchasers. The spent acid, spent caustic and separated black liquor are returned to the weak black liquor storage tanks.

Causticizing Lime Recovery

THE CAUSTICIZING DEPARTMENT contains a single compartment green liquor clarifier 35 ft. diameter by 24 ft. high, a dregs mixer 7 ft. diameter by 7 ft. high, and a dregs washer 22 ft. diameter by 24 ft. high for clarification of the green liquor and washing the soluble chemical from the solids removed from the green liquor. The clarified green liquor is stored in a tank 35 ft. diameter by 28 ft. high. The clarified green liquor is metered from the storage into the slaker which is a conventional unit.

From the clarified section of the slaker the liquor flows through three causticizers, 12 ft. diameter by 10 ft. high, in series and finally to a white liquor sump. This sump is maintained at a constant level by a hydraulically coupled variable speed pump with the pump speed being controlled by the sump level. Lime is metered into the slaker by variable speed screws which withdraw lime from a fresh lime tank or a reburned lime tank. Capacity of each lime tank is 150 tons of lime. Lime feeders may be operated separately or together.

White liquor is pumped from the sump to a conventional four compartment white liquor clarifier. This unit has a rake lifting device that automatically raises and lowers the rakes as dictated by the strain on the rakes. The clarified white liquor overflows into twin white liquor

Westinghouse controls on world's fastest kraft paper machine

Westinghouse static regulators control all wet and dry end helper drives, as well as the winder drive. In use by more than 500 paper producing and finishing operations, this Westinghouse static control provides simplified, automatic regulation . . . maintains paper quality at high speeds. For more information on how Westinghouse serves Union Bag-Camp's high-speed machine, see the next page.

J-96162-4

Westinghouse

THIS IS FIBRENIER

NOW IN PRODUCTION AT THE NEWEST KRAFT MILL IN NORTH AMERICA

A new Kraft mill at Woodfibre, British Columbia, is on stream! Specifically designed to produce great paper-making pulps, competitively priced, Woodfibre is now turning out FIBRENIER —first of a new family of advanced pulps that offer the papermaker important new opportunities for strength, brightness, formation, opacity and smoothness.

FIBRENIER is an all-new blend of western red cedar (for Mullen, tensile and fold . . . plus opacity and surface smoothness); Douglas fir (for exceptional tear strength); western hemlock (for high freeness and balanced strength properties)—another achievement of Rayonier Research.

See for yourself just how great FIBRENIER is. Call your Rayonier representative collect today. Samples and tonnage quantities are ready. Or write for complete data. No obligation.

RAYONIER

GREAT PAPER-MAKING PULPS

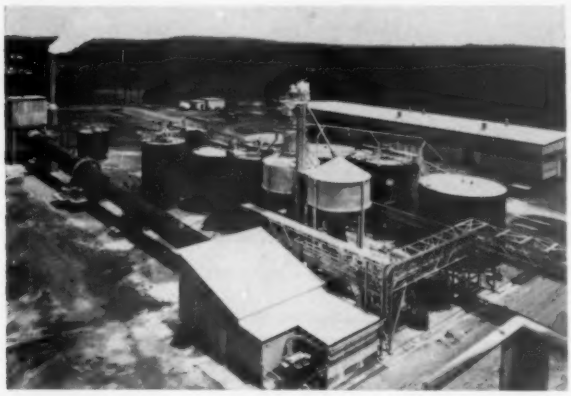
Rayonier Incorporated
161 East 42nd Street
New York 17, New York

For The World's Leading Papermakers — The Complete Line of Fibers • Bleached sulfates: western softwood, western red cedar, southern pine and southern hardwood. Bleached sulfites: western hemlock, southern pine.

. . . Tennessee River mill

storage tanks, 38 ft. diameter and 28 ft. high. Underflow density is measured by a radioactive density measuring gauge and the rate of underflow is controlled to maintain any desired density by a hydraulically coupled variable speed pump, the speed being controlled by the density measuring gauge.

The lime mud underflow from the white liquor clarifier is delivered to a four compartment two stage lime mud washer. The lime mud is washed by filtrate from the lime mud filter, water from the lime kiln stack gas scrubber and make up water as required. The underflows from the first stage washing and the second stage washing are handled with density measuring gauges and variable speed pumps in the same way as the underflow from the white liquor clarifier. The lime mud washer also has an automatic rake lifting device. Underflow from the final stage is pumped to the lime mud storage tank, 20 ft. dia. by 20 ft. high and is agitated by a three blade, top entry, sweep type agitator.



LIME, CAUSTIC areas. In background are stores and maintenance building.

Lime mud is pumped from lime mud storage to the vat of the lime mud filter. The rate is regulated by the hydraulically coupled variable speed pump and the density is controlled by a radioactive density measuring gauge which regulates dilution water into the pump suction to give the desired density.

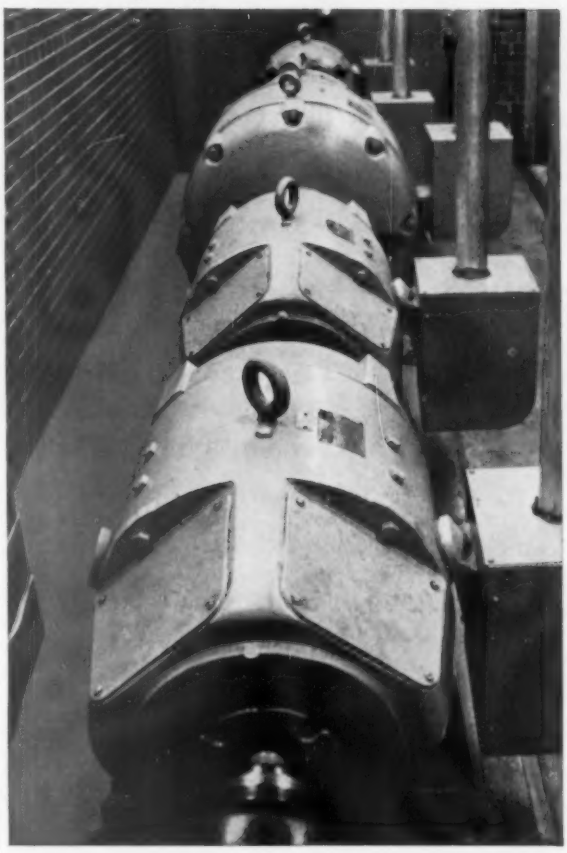
The lime mud filter is a "pre-coat" type vacuum drum filter operating at 20" hg. vacuum and a discharge of 75% solids. This unit is equipped with a sweep type vat agitator, a variable speed drum drive and the conventional water sprays for washing. The cake leaving the filter contains about one half of one percent alkali.

Cake leaving the filter is conveyed into the lime kiln by a screw conveyor. The kiln is 9 ft. diameter and 250 ft. long, and is equipped with a chain section, an induced fan, a primary air fan, a four speed electric drive, an auxiliary gasoline engine drive, a stack gas scrubber and a combination gas-oil burner. Natural gas is the primary fuel with Bunker "C" oil as standby fuel:

The scrubber is an integral part of the stack with the induced draft fan running in the hot gases ahead of the scrubber. The lime leaving the kiln drops into a drag conveyor which discharges into a bucket elevator. The bucket elevator discharges through a pipe into the top of the reburned lime tank.

The weak tank used as storage of liquid for dissolving

Westinghouse d-c generators supply power to world's fastest kraft paper machine



Two Westinghouse adjustable voltage d-c drives (350-kw for fourdrinier section; 250-kw for wet-felt section) power the wet end of the new Union Bag-Camp machine. Westinghouse exclusive insulation system assures extra service life for these important drives. Four Westinghouse Life-Line H d-c 40-kw generators power the dry-end helper drives, permit close regulation, faster accelerations, maximum performance. For more details on the new #7 machine, see the next page.

J-96162-5

Westinghouse

for improved bonding, higher solids content, better pigment dispersion use CALGON* in your coating formula

Calgon improves coating formulas in several important ways. Its high efficiency as a dispersing agent of clay, titanium dioxide, precipitated calcium carbonate and other pigments results in smoother coating colors. Flow properties are improved, and higher concentrations of solids may be used. Calgon also improves the bond between coating and paper stock.

These are some of the reasons why most of the nation's leading producers of coated papers and coated boxboards use Calgon. They also rely on Calgon's Technical Service for assistance on a wide variety of water problems.

Calgon is also useful in controlling a number of water conditions in paper mills. For example, added in only a few ppm to high bicarbonate water, it inhibits the precipitation of calcium carbonate when the water is heated or treated with alkali, and prevents harmful scale formation when washing de-inked paper stock or alkaline pulps.

Calgon added to corrosive water in similar amounts controls corrosion of pipe lines, reducing iron pickup to less than 0.1 ppm, and thus inhibits the breakdown of peroxide solution as in the bleaching of groundwood pulp.

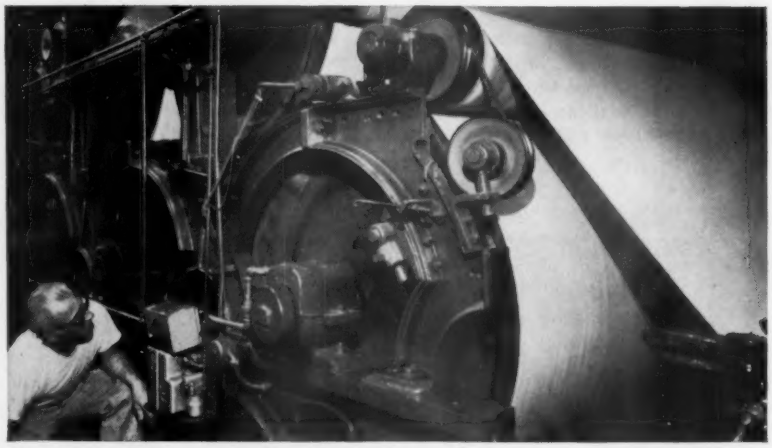
Several years of use have proved that Synoca (Calgon felt washing compound) gets even the dirtiest felts super-clean, softer and more absorbent.

If you have a problem, call on Calgon. A new brochure, "Calgon in Industry" is available on request. Write to CALGON COMPANY, Hagan Center, Pittsburgh 30, Pa.

*Calgon is the registered trademark of Calgon Company for its sodium phosphate glass (sodium hexametaphosphate) products.

at **MARATHON** A Division of American Can Company

ONLY 0.75 ppm HAGAFILM® HELPS REDUCE STEAM COSTS, TRAP AND PIPE MAINTENANCE



Quick case history—reading time 75 seconds

THE PLANT: The Menasha, Wisconsin, plant of Marathon Paper Company contains two veteran paper machines that have been rolling out paper for bread wrapping for over forty years. Plant personnel were on the lookout for methods of achieving production economies and reduced maintenance costs.

THE PROBLEM: Heat transfer rate at the dryer rolls could be improved, steam trap clogging and pipe maintenance due to corrosion added to overall costs.

THE SOLUTION: Constant improvement in operating procedures, modification of equipment and the use of Hagafilm achieved the desired results. Hagafilm forms a non-wettable film that not only protects all surfaces it contacts, but also cleans out old deposits.

RESULTS: Steam demand fell from 300,000 to 286,000 pounds a day which represents a substantial saving. Steam trap clogging and pipe maintenance due to corrosion decreased materially—another saving. And, there has been no trouble with sticking valves.

FOR MORE INFORMATION on how Hagafilm can help you reduce corrosion costs in steam condensate systems, write or phone for Bulletin 410-12-7.

HAGAN
CHEMICALS & CONTROLS, INC.
HAGAN CENTER, PITTSBURGH 30, PA.

HAGAN DIVISIONS: CALGON CO. • HALL LABORATORIES • BRUNER CORP.

. . . Tennessee River mill

the smelt in the recovery furnace dissolving tank is 28 ft. diameter by 28 ft. high and receives its supply from the overflows of the lime mud washer and the dregs washer.

Boiler Feedwater Treatment

THE COMBINATION BOILER is a fuel fired unit used to generate the steam needed for the plant above the amount generated by the recovery furnace. This unit is a two drum, baffleless boiler with a superheater and a flue gas heated air heater. The unit is designed to operate on bark, gas or oil with provisions for future firing of pulverized coal if this becomes desirable. The boiler is capable of generating 300,000 lbs./hr. of steam at a pressure of 600 psi and a temperature of 750°F.

The bark is burned on a traveling grate and oil or gas is burned in tangential burners mounted near the four corners of the combustion chamber. Bark is delivered through four openings by a vibrating feeder that is supplied with bark from the bark storage bin by a flat belt conveyor. The boiler has a sand removal system and a cinder reinjection system. Soot is blown by steam supplied electric motor driven retractable soot blowers.

Mill Water

MILL WATER is drawn from a lake above Pickwick Dam through a 4 ft. diameter intake line that extends 785 ft. into the lake. The end of the intake line is anchored so that water is drawn from a point 6 ft. above the bottom of the lake and 19 ft. below normal water level.

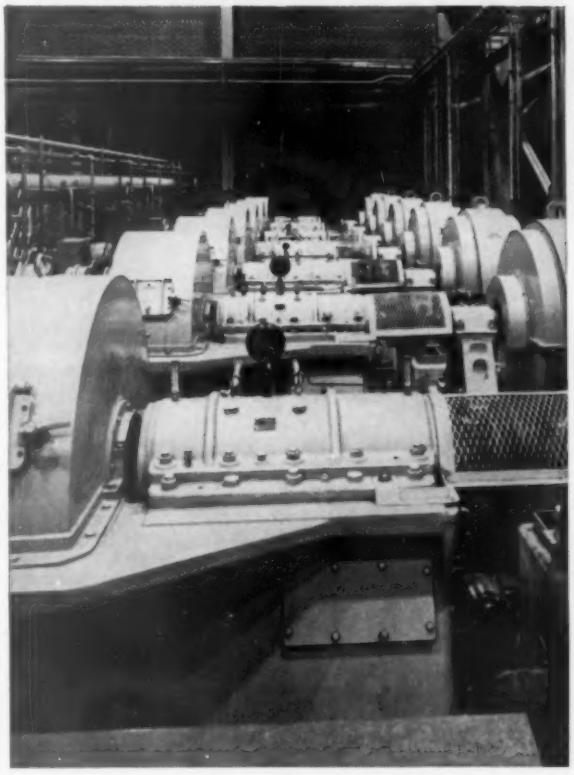
Water flows by head differential through a shut-off valve and into a 25 ft. deep sump. It is then screened through a traveling screen to the suctions of three vertical pumps driven by 450 hp, 1,800 rpm motors to deliver 5,200 gpm each to the mill at a mill pressure of 60 psi. Water is automatically chlorinated at this pumping station.

Steam is generated at 600 psi. Turbine exhaust at 160 psi plus pressure reducing and desuperheating stations supply steam at 150 psi for the paper machine, digesters, etc. One group of turbines exhausts at 75 psi and this steam plus pressure reducing (160 psi to 75 psi) and desuperheating stations supply 75 psi steam for evaporator and other low pressure uses.

TVA furnishes all electric power. Power is brought to TVA's 15,000 kva sub-station adjacent to the mill fence by 161,000 volt transmission lines, reduced first to 13,000 volts and then to 2,300 volts. Mill distribution is at 2,300 volts with transformers reducing to 440 volts, 220 volts and 110 volts as needed.

Mill effluent is piped to the effluent pond in a cloesd pipe, passes through the effluent pond in a half pipe, then through a dam across the lower end of the pond and to the river in a closed pipe. The pipe at the outlet of the pond contains a gate and a recording conductivity meter is located in the pipe so that effluent conductivity is continuously recorded. This permits ponding the effluent, in the event of contamination, until corrective action is taken and sufficient diluting accomplished to bring effluent within prescribed concentration limits. Outfall on the river bottom has numerous nozzles to diffuse the effluent over the river bottom. The gate and pond arrangement also allows effluent to be discharged in proportion to the river flow whenever this is desirable. Sanitary sewage is treated in a sewage treatment plant prior to discharge through the effluent pond.

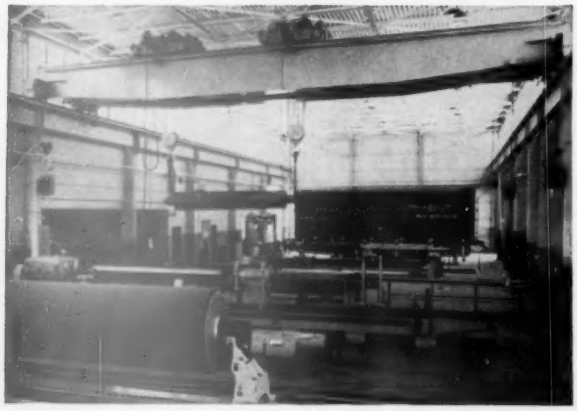
Westinghouse a-c motors drive auxiliaries for world's fastest kraft paper machine



Westinghouse Lifeline A motors, of the totally enclosed, fan cooled type, were selected for the heavy duty service involved in powering numerous pumps and Sturtevant fans. Westinghouse motors, which combine complete accessibility with top performance, are used to power the seven refiners in use with Union Bag-Camp's new #7 machine. There are more details on the next page.

J-96162-6

Westinghouse



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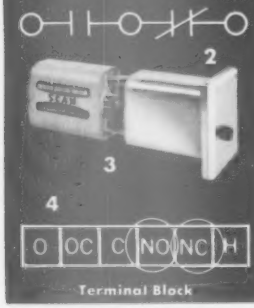

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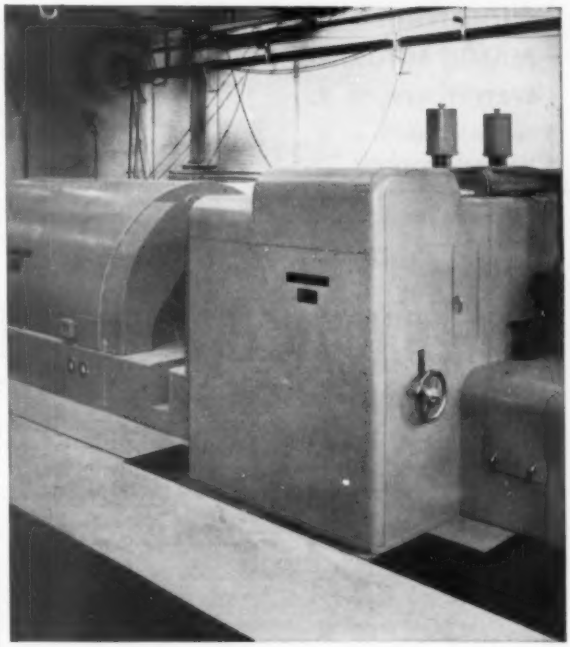
Westinghouse turbine generators power Union Bag-Camp #7 machine expansion



To handle the increased power load required by Union Bag-Camp's #7 machine, a new Westinghouse turbine generator (rated at 25,600 kva) was installed in the power plant at the Savannah, Ga., facility. Of the hydrogen-cooled non-condensing type, this Westinghouse turbine generator uses inlet steam at 1200 psi, 950°F, exhausting at 150 psi. For more information on the new #7 machine, see the next page.

J-96162-7

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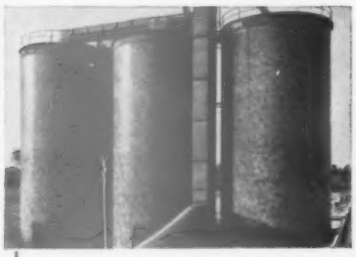

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The last word

Important Plans for PULP & PAPER INTERNATIONAL

Many PULP & PAPER readers will be interested in some important steps being taken to expand and improve the editorial services for its companion magazine, PULP & PAPER INTERNATIONAL, which primarily serves more than 70 nations in pulp and paper manufacturing outside the U.S.

Albert W. Wilson, its editor since inception in Jan. 1959, as well as editor of PULP & PAPER, becomes editorial director of PULP & PAPER INTERNATIONAL.

Ward C. Williams, familar to many PULP & PAPER readers because he served this magazine for more than four years as its regional editor in Seattle, Wash., flew to Europe in early June to become editor of PULP & PAPER INTERNATIONAL.

These changes permit Mr. Wilson to devote more time to PULP & PAPER and its readers. He has spent 12 of the 30 months since PULP & PAPER INTERNATIONAL was launched in Europe, acting on behalf of PULP & PAPER as well as the new magazine. Zürich will be Mr Williams' headquarters. Mr. Wilson is now located permanently in PULP & PAPER's New York headquarters, 370 Lexington Ave.

Williams Wilson

Mr. Williams, 35, a graduate of Oregon State Univ. with b.s. in forest management, spent six years in the USFS in Alaska, Oregon and Washington, then joined Miller Freeman Publications in Seattle, as a staff editor. For four years during this time he was regional editor for PULP & PAPER and visited and wrote about many of the big mills of the Far West. Recently he has been editor of publications for American Forest Products Industries, Inc.

PULP & PAPER readers will be beneficiaries' of his sojourn in Europe as some of his reports, of special interest to this industry, will be published in PULP & PAPER.

Lurid and Literate

It has become a highly-specialized and demanding field already—designing those lurid and outrageous covers dreamed up by ingenious back-room boys for otherwise sober paperback books.

Nevertheless, despite the chorus of horror from the pendants, the paperback revolution is something that book-lovers should applaud. In time, lurid covers or no, this flowing tide of paperbacks will help to create a new and higher level of world literacy and intelligence.

The point was made by Bowaters chairman, Sir Eric Bowater, who, as host at an exhibition of paperbacks from all over the world at Bowater House, London, declared:

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The exhibition—entitled "Paperbacks across Frontiers"—was jointly prepared by the Bowater Organization and the National Book League, and was opened by Sir John Simpson, Controller of Her Majesty's Stationery Office. On display were books from countries all over the world, including Russia, China, Pakistan, India, Iran and Indonesia. *Bowater World.*

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